VOL. LIX. No. 236.] [October, 1950

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—COMPUTING MACHINERY AND INTELLIGENCE

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1. *The Imitation Game.*

I PROPOSE to consider the question, 'Can machines think?' This should begin with definitions of the meaning of the terms 'machine' and 'think'. The definitions might be framed so as to reflect so far as possible the normal use of the words, but this attitude is dangerous. If the meaning of the words 'machine' and 'think' are to be found by examining how they are commonly used it is difficult to escape the conclusion that the meaning and the answer to the question, 'Can machines think?' is to be sought in a statistical survey such as a Gallup poll. But this is absurd. Instead of attempting such a definition I shall replace the question by another, which is closely related to it and is expressed in relatively unambiguous words.

The new form of the problem can be described in terms of a game which we call the 'imitation game'. It is played with three people, a man (A), a woman (B), and an interrogator (C) who may be of either sex. The interrogator stays in a room apart from the other two. The object of the game for the interrogator is to determine which of the other two is the man and which is the woman. He knows them by labels X and Y, and at the end of the game he says either 'X is A and Y is B' or 'X is B and Y is A'. The interrogator is allowed to put questions to A and B thus:

C: Will X please tell me the length of his or her hair?

Now suppose X is actually A, then A must answer. It is A's

object in the game to try and cause C to make the wrong identification. His answer might therefore be

'My hair is shingled, and the longest strands are about nine inches long.'

In order that tones of voice may not help the interrogator the answers should be written, or better still, typewritten. The ideal arrangement is to have a teleprinter communicating between the two rooms. Alternatively the question and answers can be repeated by an intermediary. The object of the game for the third player (B) is to help the interrogator. The best strategy for her is probably to give truthful answers. She can add such things as 'I am the woman, don't listen to him!' to her answers, but it will avail nothing as the man can make similar remarks.

We now ask the question, 'What will happen when a machine takes the part of A in this game?' Will the interrogator decide wrongly as often when the game is played like this as he does when the game is played between a man and a woman? These questions replace our original, 'Can machines think?'

2. *Critique of the New Problem.*

As well as asking, 'What is the answer to this new form of the question', one may ask, 'Is this new question a worthy one to investigate?' This latter question we investigate without further ado, thereby cutting short an infinite regress.

The new problem has the advantage of drawing a fairly sharp line between the physical and the intellectual capacities of a man. No engineer or chemist claims to be able to produce a material which is indistinguishable from the human skin. It is possible that at some time this might be done, but even supposing this invention available we should feel there was little point in trying to make a 'thinking machine' more human by dressing it up in such artificial flesh. The form in which we have set the problem reflects this fact in the condition which prevents the interrogator from seeing or touching the other competitors, or hearing their voices. Some other advantages of the proposed criterion may be shown up by specimen questions and answers. Thus:

Q: Please write me a sonnet on the subject of the Forth Bridge.
A: Count me out on this one. I never could write poetry.
Q: Add 34957 to 70764
A: (Pause about 30 seconds and then give as answer) 105621.
Q: Do you play chess?
A: Yes.

Q : I have K at my K1, and no other pieces. You have only K at K6 and R at R1. It is your move. What do you play ?

A : (After a pause of 15 seconds) R-R8 mate.

The question and answer method seems to be suitable for introducing almost any one of the fields of human endeavour that we wish to include. We do not wish to penalise the machine for its inability to shine in beauty competitions, nor to penalise a man for losing in a race against an aeroplane. The conditions of our game make these disabilities irrelevant. The ' witnesses ' can brag, if they consider it advisable, as much as they please about their charms, strength or heroism, but the interrogator cannot demand practical demonstrations.

The game may perhaps be criticised on the ground that the odds are weighted too heavily against the machine. If the man were to try and pretend to be the machine he would clearly make a very poor showing. He would be given away at once by slowness and inaccuracy in arithmetic. May not machines carry out something which ought to be described as thinking but which is very different from what a man does ? This objection is a very strong one, but at least we can say that if, nevertheless, a machine can be constructed to play the imitation game satisfactorily, we need not be troubled by this objection.

It might be urged that when playing the ' imitation game ' the best strategy for the machine may possibly be something other than imitation of the behaviour of a man. This may be, but I think it is unlikely that there is any great effect of this kind. In any case there is no intention to investigate here the theory of the game, and it will be assumed that the best strategy is to try to provide answers that would naturally be given by a man.

3. *The Machines concerned in the Game.*

The question which we put in § 1 will not be quite definite until we have specified what we mean by the word ' machine '. It is natural that we should wish to permit every kind of engineering technique to be used in our machines. We also wish to allow the possibility than an engineer or team of engineers may construct a machine which works, but whose manner of operation cannot be satisfactorily described by its constructors because they have applied a method which is largely experimental. Finally, we wish to exclude from the machines men born in the usual manner. It is difficult to frame the definitions so as to satisfy these three conditions. One might for instance insist that the team of

engineers should be all of one sex, but this would not really be satisfactory, for it is probably possible to rear a complete individual from a single cell of the skin (say) of a man. To do so would be a feat of biological technique deserving of the very highest praise, but we would not be inclined to regard it as a case of ' constructing a thinking machine '. This prompts us to abandon the requirement that every kind of technique should be permitted. We are the more ready to do so in view of the fact that the present interest in ' thinking machines ' has been aroused by a particular kind of machine, usually called an ' electronic computer ' or ' digital computer '. Following this suggestion we only permit digital computers to take part in our game.

This restriction appears at first sight to be a very drastic one. I shall attempt to show that it is not so in reality. To do this necessitates a short account of the nature and properties of these computers.

It may also be said that this identification of machines with digital computers, like our criterion for ' thinking ', will only be unsatisfactory if (contrary to my belief), it turns out that digital computers are unable to give a good showing in the game.

There are already a number of digital computers in working order, and it may be asked, ' Why not try the experiment straight away ? It would be easy to satisfy the conditions of the game. A number of interrogators could be used, and statistics compiled to show how often the right identification was given.' The short answer is that we are not asking whether all digital computers would do well in the game nor whether the computers at present available would do well, but whether there are imaginable computers which would do well. But this is only the short answer. We shall see this question in a different light later.

4. *Digital Computers.*

The idea behind digital computers may be explained by saying that these machines are intended to carry out any operations which could be done by a human computer. The human computer is supposed to be following fixed rules ; he has no authority to deviate from them in any detail. We may suppose that these rules are supplied in a book, which is altered whenever he is put on to a new job. He has also an unlimited supply of paper on which he does his calculations. He may also do his multiplications and additions on a ' desk machine ', but this is not important.

If we use the above explanation as a definition we shall be in

danger of circularity of argument. We avoid this by giving an outline of the means by which the desired effect is achieved. A digital computer can usually be regarded as consisting of three parts :

(i) Store.
(ii) Executive unit.
(iii) Control.

The store is a store of information, and corresponds to the human computer's paper, whether this is the paper on which he does his calculations or that on which his book of rules is printed. In so far as the human computer does calculations in his head a part of the store will correspond to his memory.

The executive unit is the part which carries out the various individual operations involved in a calculation. What these individual operations are will vary from machine to machine. Usually fairly lengthy operations can be done such as ' Multiply 3540675445 by 7076345687 ' but in some machines only very simple ones such as ' Write down 0 ' are possible.

We have mentioned that the ' book of rules ' supplied to the computer is replaced in the machine by a part of the store. It is then called the ' table of instructions '. It is the duty of the control to see that these instructions are obeyed correctly and in the right order. The control is so constructed that this necessarily happens.

The information in the store is usually broken up into packets of moderately small size. In one machine, for instance, a packet might consist of ten decimal digits. Numbers are assigned to the parts of the store in which the various packets of information are stored, in some systematic manner. A typical instruction might say—

' Add the number stored in position 6809 to that in 4302 and put the result back into the latter storage position '.

Needless to say it would not occur in the machine expressed in English. It would more likely be coded in a form such as 6809430217. Here 17 says which of various possible operations is to be performed on the two numbers. In this case the operation is that described above, *viz.* ' Add the number. . . .' It will be noticed that the instruction takes up 10 digits and so forms one packet of information, very conveniently. The control will normally take the instructions to be obeyed in the order of the positions in which they are stored, but occasionally an instruction such as

'Now obey the instruction stored in position 5606, and continue from there'
may be encountered, or again
'If position 4505 contains 0 obey next the instruction stored in 6707, otherwise continue straight on.'
Instructions of these latter types are very important because they make it possible for a sequence of operations to be repeated over and over again until some condition is fulfilled, but in doing so to obey, not fresh instructions on each repetition, but the same ones over and over again. To take a domestic analogy. Suppose Mother wants Tommy to call at the cobbler's every morning on his way to school to see if her shoes are done, she can ask him afresh every morning. Alternatively she can stick up a notice once and for all in the hall which he will see when he leaves for school and which tells him to call for the shoes, and also to destroy the notice when he comes back if he has the shoes with him.

The reader must accept it as a fact that digital computers can be constructed, and indeed have been constructed, according to the principles we have described, and that they can in fact mimic the actions of a human computer very closely.

The book of rules which we have described our human computer as using is of course a convenient fiction. Actual human computers really remember what they have got to do. If one wants to make a machine mimic the behaviour of the human computer in some complex operation one has to ask him how it is done, and then translate the answer into the form of an instruction table. Constructing instruction tables is usually described as 'programming'. To 'programme a machine to carry out the operation A' means to put the appropriate instruction table into the machine so that it will do A.

An interesting variant on the idea of a digital computer is a 'digital computer with a random element'. These have instructions involving the throwing of a die or some equivalent electronic process; one such instruction might for instance be,'Throw the die and put the resulting number into store 1000'. Sometimes such a machine is described as having free will (though I would not use this phrase myself). It is not normally possible to determine from observing a machine whether it has a random element, for a similar effect can be produced by such devices as making the choices depend on the digits of the decimal for π.

Most actual digital computers have only a finite store. There is no theoretical difficulty in the idea of a computer with an unlimited store. Of course only a finite part can have been used at any one time. Likewise only a finite amount can have been

constructed, but we can imagine more and more being added as required. Such computers have special theoretical interest and will be called infinitive capacity computers.

The idea of a digital computer is an old one. Charles Babbage, Lucasian Professor of Mathematics at Cambridge from 1828 to 1839, planned such a machine, called the Analytical Engine, but it was never completed. Although Babbage had all the essential ideas, his machine was not at that time such a very attractive prospect. The speed which would have been available would be definitely faster than a human computer but something like 100 times slower than the Manchester machine, itself one of the slower of the modern machines. The storage was to be purely mechanical, using wheels and cards.

The fact that Babbage's Analytical Engine was to be entirely mechanical will help us to rid ourselves of a superstition. Importance is often attached to the fact that modern digital computers are electrical, and that the nervous system also is electrical. Since Babbage's machine was not electrical, and since all digital computers are in a sense equivalent, we see that this use of electricity cannot be of theoretical importance. Of course electricity usually comes in where fast signalling is concerned, so that it is not surprising that we find it in both these connections. In the nervous system chemical phenomena are at least as important as electrical. In certain computers the storage system is mainly acoustic. The feature of using electricity is thus seen to be only a very superficial similarity. If we wish to find such similarities we should look rather for mathematical analogies of function.

5. *Universality of Digital Computers.*

The digital computers considered in the last section may be classified amongst the 'discrete state machines'. These are the machines which move by sudden jumps or clicks from one quite definite state to another. These states are sufficiently different for the possibility of confusion between them to be ignored. Strictly speaking there are no such machines. Everything really moves continuously. But there are many kinds of machine which can profitably be *thought of* as being discrete state machines. For instance in considering the switches for a lighting system it is a convenient fiction that each switch must be definitely on or definitely off. There must be intermediate positions, but for most purposes we can forget about them. As an example of a discrete state machine we might consider a wheel which clicks

round through 120° once a second, but may be stopped by a lever which can be operated from outside ; in addition a lamp is to light in one of the positions of the wheel. This machine could be described abstractly as follows. The internal state of the machine (which is described by the position of the wheel) may be q_1, q_2 or q_3. There is an input signal i_0 or i_1 (position of lever). The internal state at any moment is determined by the last state and input signal according to the table

		Last State		
		q_1	q_2	q_3
Input	i_0	q_2	q_3	q_1
	i_1	q_1	q_2	q_3

The output signals, the only externally visible indication of the internal state (the light) are described by the table

State	q_1	q_2	q_3
Output	o_0	o_0	o_1

This example is typical of discrete state machines. They can be described by such tables provided they have only a finite number of possible states.

It will seem that given the initial state of the machine and the input signals it is always possible to predict all future states. This is reminiscent of Laplace's view that from the complete state of the universe at one moment of time, as described by the positions and velocities of all particles, it should be possible to predict all future states. The prediction which we are considering is, however, rather nearer to practicability than that considered by Laplace. The system of the 'universe as a whole' is such that quite small errors in the initial conditions can have an overwhelming effect at a later time. The displacement of a single electron by a billionth of a centimetre at one moment might make the difference between a man being killed by an avalanche a year later, or escaping. It is an essential property of the mechanical systems which we have called 'discrete state machines' that this phenomenon does not occur. Even when we consider the actual physical machines instead of the idealised machines, reasonably accurate knowledge of the state at one moment yields reasonably accurate knowledge any number of steps later.

As we have mentioned, digital computers fall within the class of discrete state machines. But the number of states of which such a machine is capable is usually enormously large. For instance, the number for the machine now working at Manchester it about $2^{165,000}$, *i.e.* about $10^{50,000}$. Compare this with our example of the clicking wheel described above, which had three states. It is not difficult to see why the number of states should be so immense. The computer includes a store corresponding to the paper used by a human computer. It must be possible to write into the store any one of the combinations of symbols which might have been written on the paper. For simplicity suppose that only digits from 0 to 9 are used as symbols. Variations in handwriting are ignored. Suppose the computer is allowed 100 sheets of paper each containing 50 lines each with room for 30 digits. Then the number of states is $10^{100\times50\times30}$, *i.e.* $10^{150,000}$. This is about the number of states of three Manchester machines put together. The logarithm to the base two of the number of states is usually called the ' storage capacity ' of the machine. Thus the Manchester machine has a storage capacity of about 165,000 and the wheel machine of our example about 1·6. If two machines are put together their capacities must be added to obtain the capacity of the resultant machine. This leads to the possibility of statements such as ' The Manchester machine contains 64 magnetic tracks each with a capacity of 2560, eight electronic tubes with a capacity of 1280. Miscellaneous storage amounts to about 300 making a total of 174,380.'

Given the table corresponding to a discrete state machine it is possible to predict what it will do. There is no reason why this calculation should not be carried out by means of a digital computer. Provided it could be carried out sufficiently quickly the digital computer could mimic the behaviour of any discrete state machine. The imitation game could then be played with the machine in question (as B) and the mimicking digital computer (as A) and the interrogator would be unable to distinguish them. Of course the digital computer must have an adequate storage capacity as well as working sufficiently fast. Moreover, it must be programmed afresh for each new machine which it is desired to mimic.

This special property of digital computers, that they can mimic any discrete state machine, is described by saying that they are *universal* machines. The existence of machines with this property has the important consequence that, considerations of speed apart, it is unnecessary to design various new machines to do various computing processes. They can all be

done with one digital computer, suitably programmed for each case. It will be seen that as a consequence of this all digital computers are in a sense equivalent.

We may now consider again the point raised at the end of §3. It was suggested tentatively that the question, 'Can machines think ?' should be replaced by 'Are there imaginable digital computers which would do well in the imitation game ?' If we wish we can make this superficially more general and ask 'Are there discrete state machines which would do well ?' But in view of the universality property we see that either of these questions is equivalent to this, 'Let us fix our attention on one particular digital computer C. Is it true that by modifying this computer to have an adequate storage, suitably increasing its speed of action, and providing it with an appropriate programme, C can be made to play satisfactorily the part of A in the imitation game, the part of B being taken by a man ?'

6. *Contrary Views on the Main Question.*

We may now consider the ground to have been cleared and we are ready to proceed to the debate on our question, 'Can machines think ?' and the variant of it quoted at the end of the last section. We cannot altogether abandon the original form of the problem, for opinions will differ as to the appropriateness of the substitution and we must at least listen to what has to be said in this connexion.

It will simplify matters for the reader if I explain first my own beliefs in the matter. Consider first the more accurate form of the question. I believe that in about fifty years' time it will be possible to programme computers, with a storage capacity of about 10^9, to make them play the imitation game so well that an average interrogator will not have more than 70 per cent. chance of making the right identification after five minutes of questioning. The original question, 'Can machines think ?' I believe to be too meaningless to deserve discussion. Nevertheless I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted. I believe further that no useful purpose is served by concealing these beliefs. The popular view that scientists proceed inexorably from well-established fact to well-established fact, never being influenced by any unproved conjecture, is quite mistaken. Provided it is made clear which are proved facts and which are conjectures, no harm can result. Conjectures are of great importance since they suggest useful lines of research.

I now proceed to consider opinions opposed to my own.

(1) *The Theological Objection.* Thinking is a function of man's immortal soul. God has given an immortal soul to every man and woman, but not to any other animal or to machines. Hence no animal or machine can think.

I am unable to accept any part of this, but will attempt to reply in theological terms. I should find the argument more convincing if animals were classed with men, for there is a greater difference, to my mind, between the typical animate and the inanimate than there is between man and the other animals. The arbitrary character of the orthodox view becomes clearer if we consider how it might appear to a member of some other religious community. How do Christians regard the Moslem view that women have no souls? But let us leave this point aside and return to the main argument. It appears to me that the argument quoted above implies a serious restriction of the omnipotence of the Almighty. It is admitted that there are certain things that He cannot do such as making one equal to two, but should we not believe that He has freedom to confer a soul on an elephant if He sees fit? We might expect that He would only exercise this power in conjunction with a mutation which provided the elephant with an appropriately improved brain to minister to the needs of this soul. An argument of exactly similar form may be made for the case of machines. It may seem different because it is more difficult to "swallow". But this really only means that we think it would be less likely that He would consider the circumstances suitable for conferring a soul. The circumstances in question are discussed in the rest of this paper. In attempting to construct such machines we should not be irreverently usurping His power of creating souls, any more than we are in the procreation of children: rather we are, in either case, instruments of His will providing mansions for the souls that He creates.

However, this is mere speculation. I am not very impressed with theological arguments whatever they may be used to support. Such arguments have often been found unsatisfactory in the past. In the time of Galileo it was argued that the texts, "And the sun stood still . . . and hasted not to go down about a whole day" (Joshua x. 13) and "He laid the foundations of the earth,

[1] Possibly this view is heretical. St. Thomas Aquinas (*Summa Theologica*, quoted by Bertrand Russell, p. 480) states that God cannot make a man to have no soul. But this may not be a real restriction on His powers, but only a result of the fact that men's souls are immortal, and therefore indestructible.

that it should not move at any time" (Psalm cv. 5) were an adequate refutation of the Copernican theory. With our present knowledge such an argument appears futile. When that knowledge was not available it made a quite different impression.

(2) *The 'Heads in the Sand' Objection.* "The consequences of machines thinking would be too dreadful. Let us hope and believe that they cannot do so."

This argument is seldom expressed quite so openly as in the form above. But it affects most of us who think about it at all. We like to believe that Man is in some subtle way superior to the rest of creation. It is best if he can be shown to be *necessarily* superior, for then there is no danger of him losing his commanding position. The popularity of the theological argument is clearly connected with this feeling. It is likely to be quite strong in intellectual people, since they value the power of thinking more highly than others, and are more inclined to base their belief in the superiority of Man on this power.

I do not think that this argument is sufficiently substantial to require refutation. Consolation would be more appropriate: perhaps this should be sought in the transmigration of souls.

(3) *The Mathematical Objection.* There are a number of results of mathematical logic which can be used to show that there are limitations to the powers of discrete-state machines. The best known of these results is known as Gödel's theorem,[1] and shows that in any sufficiently powerful logical system statements can be formulated which can neither be proved nor disproved within the system, unless possibly the system itself is inconsistent. There are other, in some respects similar, results due to *Church*, *Kleene*, *Rosser*, and *Turing*. The latter result is the most convenient to consider, since it refers directly to machines, whereas the others can only be used in a comparatively indirect argument: for instance if Gödel's theorem is to be used we need in addition to have some means of describing logical systems in terms of machines, and machines in terms of logical systems. The result in question refers to a type of machine which is essentially a digital computer with an infinite capacity. It states that there are certain things that such a machine cannot do. If it is rigged up to give answers to questions as in the imitation game, there will be some questions to which it will either give a wrong answer, or fail to give an answer at all however much time is allowed for a reply. There may, of course, be many such questions, and questions which cannot be answered by one machine may be satisfactorily

[1] Author's names in italics refer to the Bibliography.

answered by another. We are of course supposing for the present that the questions are of the kind to which an answer 'Yes' or 'No' is appropriate, rather than questions such as 'What do you think of Picasso?' The questions that we know the machines must fail on are of this type, "Consider the machine specified as follows. . . . Will this machine ever answer 'Yes' to any question?" The dots are to be replaced by a description of some machine in a standard form, which could be something like that used in § 5. When the machine described bears a certain comparatively simple relation to the machine which is under interrogation, it can be shown that the answer is either wrong or not forthcoming. This is the mathematical result: it is argued that it proves a disability of machines to which the human intellect is not subject.

The short answer to this argument is that although it is established that there are limitations to the powers of any particular machine, it has only been stated, without any sort of proof, that no such limitations apply to the human intellect. But I do not think this view can be dismissed quite so lightly. Whenever one of these machines is asked the appropriate critical question, and gives a definite answer, we know that this answer must be wrong, and this gives us a certain feeling of superiority. Is this feeling illusory? It is no doubt quite genuine, but I do not think too much importance should be attached to it. We too often give wrong answers to questions ourselves to be justified in being very pleased at such evidence of fallibility on the part of the machines. Further, our superiority can only be felt on such an occasion in relation to the one machine over which we have scored our petty triumph. There would be no question of triumphing simultaneously over *all* machines. In short, then, there might be men cleverer than any given machine, but then again there might be other machines cleverer again, and so on.

Those who hold to the mathematical argument would, I think, mostly be willing to accept the imitation game as a basis for discussion. Those who believe in the two previous objections would probably not be interested in any criteria.

(4) *The Argument from Consciousness.* This argument is very well expressed in *Professor Jefferson's* Lister Oration for 1949, from which I quote. "Not until a machine can write a sonnet or compose a concerto because of thoughts and emotions felt, and not by the chance fall of symbols, could we agree that machine equals brain—that is, not only write it but know that it had written it. No mechanism could feel (and not merely

artificially signal, an easy contrivance) pleasure at its successes, grief when its valves fuse, be warmed by flattery, be made miserable by its mistakes, be charmed by sex, be angry or depressed when it cannot get what it wants."

This argument appears to be a denial of the validity of our test. According to the most extreme form of this view the only way by which one could be sure that a machine thinks is to *be* the machine and to feel oneself thinking. One could then describe these feelings to the world, but of course no one would be justified in taking any notice. Likewise according to this view the only way to know that a *man* thinks is to be that particular man. It is in fact the solipsist point of view. It may be the most logical view to hold but it makes communication of ideas difficult. A is liable to believe ' A thinks but B does not ' whilst B believes ' B thinks but A does not '. Instead of arguing continually over this point it is usual to have the polite convention that everyone thinks.

I am sure that Professor Jefferson does not wish to adopt the extreme and solipsist point of view. Probably he would be quite willing to accept the imitation game as a test. The game (with the player B omitted) is frequently used in practice under the name of *viva voce* to discover whether some one really understands something or has ' learnt it parrot fashion '. Let us listen in to a part of such a *viva voce :*

Interrogator : In the first line of your sonnet which reads ' Shall I compare thee to a summer's day ', would not ' a spring day ' do as well or better ?

Witness : It wouldn't scan.

Interrogator : How about ' a winter's day ' That would scan all right.

Witness : Yes, but nobody wants to be compared to a winter's day.

Interrogator : Would you say Mr. Pickwick reminded you of Christmas ?

Witness : In a way.

Interrogator : Yet Christmas is a winter's day, and I do not think Mr. Pickwick would mind the comparison.

Witness : I don't think you're serious. By a winter's day one means a typical winter's day, rather than a special one like Christmas.

And so on. What would Professor Jefferson say if the sonnet-writing machine was able to answer like this in the *viva voce ?* I do not know whether he would regard the machine as ' merely

artificially signalling ' these answers, but if the answers were as satisfactory and sustained as in the above passage I do not think he would describe it as ' an easy contrivance '. This phrase is, I think, intended to cover such devices as the inclusion in the machine of a record of someone reading a sonnet, with appropriate switching to turn it on from time to time.

In short then, I think that most of those who support the argument from consciousness could be persuaded to abandon it rather than be forced into the solipsist position. They will then probably be willing to accept our test.

I do not wish to give the impression that I think there is no mystery about consciousness. There is, for instance, something of a paradox connected with any attempt to localise it. But I do not think these mysteries necessarily need to be solved before we can answer the question with which we are concerned in this paper.

(5) *Arguments from Various Disabilities.* These arguments take the form, " I grant you that you can make machines do all the things you have mentioned but you will never be able to make one to do X ". Numerous features X are suggested in this connexion. I offer a selection :

Be kind, resourceful, beautiful, friendly (p. 448), have initiative, have a sense of humour, tell right from wrong, make mistakes (p. 448), fall in love, enjoy strawberries and cream (p. 448), make some one fall in love with it, learn from experience (pp. 456 f.), use words properly, be the subject of its own thought (p. 449), have as much diversity of behaviour as a man, do something really new (p. 450). (Some of these disabilities are given special consideration as indicated by the page numbers.)

No support is usually offered for these statements. I believe they are mostly founded on the principle of scientific induction. A man has seen thousands of machines in his lifetime. From what he sees of them he draws a number of general conclusions. They are ugly, each is designed for a very limited purpose, when required for a minutely different purpose they are useless, the variety of behaviour of any one of them is very small, etc., etc. Naturally he concludes that these are necessary properties of machines in general. Many of these limitations are associated with the very small storage capacity of most machines. (I am assuming that the idea of storage capacity is extended in some way to cover machines other than discrete-state machines.

The exact definition does not matter as no mathematical accuracy is claimed in the present discussion.) A few years ago, when very little had been heard of digital computers, it was possible to elicit much incredulity concerning them, if one mentioned their properties without describing their construction. That was presumably due to a similar application of the principle of scientific induction. These applications of the principle are of course largely unconscious. When a burnt child fears the fire and shows that he fears it by avoiding it, I should say that he was applying scientific induction. (I could of course also describe his behaviour in many other ways.) The works and customs of mankind do not seem to be very suitable material to which to apply scientific induction. A very large part of space-time must be investigated, if reliable results are to be obtained. Otherwise we may (as most English children do) decide that everybody speaks English, and that it is silly to learn French.

There are, however, special remarks to be made about many of the disabilities that have been mentioned. The inability to enjoy strawberries and cream may have struck the reader as frivolous. Possibly a machine might be made to enjoy this delicious dish, but any attempt to make one do so would be idiotic. What is important about this disability is that it contributes to some of the other disabilities, *e.g.* to the difficulty of the same kind of friendliness occurring between man and machine as between white man and white man, or between black man and black man.

The claim that " machines cannot make mistakes " seems a curious one. One is tempted to retort, " Are they any the worse for that ? " But let us adopt a more sympathetic attitude, and try to see what is really meant. I think this criticism can be explained in terms of the imitation game. It is claimed that the interrogator could distinguish the machine from the man simply by setting them a number of problems in arithmetic. The machine would be unmasked because of its deadly accuracy. The reply to this is simple. The machine (programmed for playing the game) would not attempt to give the *right* answers to the arithmetic problems. It would deliberately introduce mistakes in a manner calculated to confuse the interrogator. A mechanical fault would probably show itself through an unsuitable decision as to what sort of a mistake to make in the arithmetic. Even this interpretation of the criticism is not sufficiently sympathetic. But we cannot afford the space to go into it much further. It seems to me that this criticism depends

on a confusion between two kinds of mistake. We may call them ' errors of functioning ' and ' errors of conclusion '. Errors of functioning are due to some mechanical or electrical fault which causes the machine to behave otherwise than it was designed to do. In philosophical discussions one likes to ignore the possibility of such errors ; one is therefore discussing ' abstract machines '. These abstract machines are mathematical fictions rather than physical objects. By definition they are incapable of errors of functioning. In this sense we can truly say that ' machines can never make mistakes '. Errors of conclusion can only arise when some meaning is attached to the output signals from the machine. The machine might, for instance, type out mathematical equations, or sentences in English. When a false proposition is typed we say that the machine has committed an error of conclusion. There is clearly no reason at all for saying that a machine cannot make this kind of mistake. It might do nothing but type out repeatedly ' $0 = 1$ '. To take a less perverse example, it might have some method for drawing conclusions by scientific induction. We must expect such a method to lead occasionally to erroneous results.

The claim that a machine cannot be the subject of its own thought can of course only be answered if it can be shown that the machine has *some* thought with *some* subject matter. Nevertheless, ' the subject matter of a machine's operations ' does seem to mean something, at least to the people who deal with it. If, for instance, the machine was trying to find a solution of the equation $x^2 - 40x - 11 = 0$ one would be tempted to describe this equation as part of the machine's subject matter at that moment. In this sort of sense a machine undoubtedly can be its own subject matter. It may be used to help in making up its own programmes, or to predict the effect of alterations in its own structure. By observing the results of its own behaviour it can modify its own programmes so as to achieve some purpose more effectively. These are possibilities of the near future, rather than Utopian dreams.

The criticism that a machine cannot have much diversity of behaviour is just a way of saying that it cannot have much storage capacity. Until fairly recently a storage capacity of even a thousand digits was very rare.

The criticisms that we are considering here are often disguised forms of the argument from consciousness. Usually if one maintains that a machine *can* do one of these things, and describes the kind of method that the machine could use, one will not make

much of an impression. It is thought that the method (whatever it may be, for it must be mechanical) is really rather base. Compare the parenthesis in Jefferson's statement quoted on p. 21.

(6) *Lady Lovelace's Objection.* Our most detailed information of Babbage's Analytical Engine comes from a memoir by *Lady Lovelace.* In it she states, "The Analytical Engine has no pretensions to *originate* anything. It can do *whatever we know how to order it* to perform" (her italics). This statement is quoted by *Hartree* (p. 70) who adds: "This does not imply that it may not be possible to construct electronic equipment which will 'think for itself', or in which, in biological terms, one could set up a conditioned reflex, which would serve as a basis for 'learning'. Whether this is possible in principle or not is a stimulating and exciting question, suggested by some of these recent developments. But it did not seem that the machines constructed or projected at the time had this property".

I am in thorough agreement with Hartree over this. It will be noticed that he does not assert that the machines in question had not got the property, but rather that the evidence available to Lady Lovelace did not encourage her to believe that they had it. It is quite possible that the machines in question had in a sense got this property. For suppose that some discrete-state machine has the property. The Analytical Engine was a universal digital computer, so that, if its storage capacity and speed were adequate, it could by suitable programming be made to mimic the machine in question. Probably this argument did not occur to the Countess or to Babbage. In any case there was no obligation on them to claim all that could be claimed.

This whole question will be considered again under the heading of learning machines.

A variant of Lady Lovelace's objection states that a machine can 'never do anything really new'. This may be parried for a moment with the saw, 'There is nothing new under the sun'. Who can be certain that 'original work' that he has done was not simply the growth of the seed planted in him by teaching, or the effect of following well-known general principles. A better variant of the objection says that a machine can never 'take us by surprise'. This statement is a more direct challenge and can be met directly. Machines take me by surprise with great frequency. This is largely because I do not do sufficient calculation to decide what to expect them to do, or rather because, although I do a calculation, I do it in a hurried, slipshod fashion, taking risks. Perhaps I say to myself, 'I suppose the voltage here ought to be the same as there: anyway let's assume it is'.

Naturally I am often wrong, and the result is a surprise for me for by the time the experiment is done these assumptions have been forgotten. These admissions lay me open to lectures on the subject of my vicious ways, but do not throw any doubt on my credibility when I testify to the surprises I experience.

I do not expect this reply to silence my critic. He will probably say that such surprises are due to some creative mental act on my part, and reflect no credit on the machine. This leads us back to the argument from consciousness, and far from the idea of surprise. It is a line of argument we must consider closed, but it is perhaps worth remarking that the appreciation of something as surprising requires as much of a 'creative mental act' whether the surprising event originates from a man, a book, a machine or anything else.

The view that machines cannot give rise to surprises is due, I believe, to a fallacy to which philosophers and mathematicians are particularly subject. This is the assumption that as soon as a fact is presented to a mind all consequences of that fact spring into the mind simultaneously with it. It is a very useful assumption under many circumstances, but one too easily forgets that it is false. A natural consequence of doing so is that one then assumes that there is no virtue in the mere working out of consequences from data and general principles.

(7) *Argument from Continuity in the Nervous System.* The nervous system is certainly not a discrete-state machine. A small error in the information about the size of a nervous impulse impinging on a neuron, may make a large difference to the size of the outgoing impulse. It may be argued that, this being so, one cannot expect to be able to mimic the behaviour of the nervous system with a discrete-state system.

It is true that a discrete-state machine must be different from a continuous machine. But if we adhere to the conditions of the imitation game, the interrogator will not be able to take any advantage of this difference. The situation can be made clearer if we consider some other simpler continuous machine. A differential analyser will do very well. (A differential analyser is a certain kind of machine not of the discrete-state type used for some kinds of calculation.) Some of these provide their answers in a typed form, and so are suitable for taking part in the game. It would not be possible for a digital computer to predict exactly what answers the differential analyser would give to a problem, but it would be quite capable of giving the right sort of answer. For instance, if asked to give the value of π (actually about 3·1416) it would be reasonable

to choose at random between the values 3·12, 3·13, 3·14, 3·15, 3·16 with the probabilities of 0·05, 0·15, 0·55, 0·19, 0·06 (say). Under these circumstances it would be very difficult for the interrogator to distinguish the differential analyser from the digital computer.

(8) *The Argument from Informality of Behaviour.* It is not possible to produce a set of rules purporting to describe what a man should do in every conceivable set of circumstances. One might for instance have a rule that one is to stop when one sees a red traffic light, and to go if one sees a green one, but what if by some fault both appear together ? One may perhaps decide that it is safest to stop. But some further difficulty may well arise from this decision later. To attempt to provide rules of conduct to cover every eventuality, even those arising from traffic lights, appears to be impossible. With all this I agree.

From this it is argued that we cannot be machines. I shall try to reproduce the argument, but I fear I shall hardly do it justice. It seems to run something like this. ' If each man had a definite set of rules of conduct by which he regulated his life he would be no better than a machine. But there are no such rules, so men cannot be machines.' The undistributed middle is glaring. I do not think the argument is ever put quite like this, but I believe this is the argument used nevertheless. There may however be a certain confusion between ' rules of conduct ' and ' laws of behaviour ' to cloud the issue. By ' rules of conduct ' I mean precepts such as ' Stop if you see red lights ', on which one can act, and of which one can be conscious. By ' laws of behaviour ' I mean laws of nature as applied to a man's body such as ' if you pinch him he will squeak '. If we substitute ' laws of behaviour which regulate his life ' for ' laws of conduct by which he regulates his life ' in the argument quoted the undistributed middle is no longer insuperable. For we believe that it is not only true that being regulated by laws of behaviour implies being some sort of machine (though not necessarily a discrete-state machine), but that conversely being such a machine implies being regulated by such laws. However, we cannot so easily convince ourselves of the absence of complete laws of behaviour as of complete rules of conduct. The only way we know of for finding such laws is scientific observation, and we certainly know of no circumstances under which we could say, ' We have searched enough. There are no such laws.'

We can demonstrate more forcibly that any such statement would be unjustified. For suppose we could be sure of finding

such laws if they existed. Then given a discrete-state machine it should certainly be possible to discover by observation sufficent about it to predict its future behaviour, and this within a reasonable time, say a thousand years. But this does not seem to be the case. I have set up on the Manchester computer a small programme using only 1000 units of storage, whereby the machine supplied with one sixteen figure number replies with another within two seconds. I would defy anyone to learn from these replies sufficient about the programme to be able to predict any replies to untried values.

(9) *The Argument from Extra-Sensory Perception.* I assume that the reader is familiar with the idea of extra-sensory perception, and the meaning of the four items of it, *viz.* telepathy, clairvoyance, precognition and psycho-kinesis. These disturbing phenomena seem to deny all our usual scientific ideas. How we should like to discredit them! Unfortunately the statistical evidence, at least for telepathy, is overwhelming. It is very difficult to rearrange one's ideas so as to fit these new facts in. Once one has accepted them it does not seem a very big step to believe in ghosts and bogies. The idea that our bodies move simply according to the known laws of physics, together with some others not yet discovered but somewhat similar, would be one of the first to go.

This argument is to my mind quite a strong one. One can say in reply that many scientific theories seem to remain workable in practice, in spite of clashing with E.S.P.; that in fact one can get along very nicely if one forgets about it. This is rather cold comfort, and one fears that thinking is just the kind of phenomenon where E.S.P. may be especially relevant.

A more specific argument based on E.S.P. might run as follows: "Let us play the imitation game, using as witnesses a man who is good as a telepathic receiver, and a digital computer. The interrogator can ask such questions as 'What suit does the card in my right hand belong to?' The man by telepathy or clairvoyance gives the right answer 130 times out of 400 cards. The machine can only guess at random, and perhaps gets 104 right, so the interrogator makes the right identification." There is an interesting possibility which opens here. Suppose the digital computer contains a random number generator. Then it will be natural to use this to decide what answer to give. But then the random number generator will be subject to the psycho-kinetic powers of the interrogator. Perhaps this psycho-kinesis might cause the machine to guess right more often than would be expected on a probability calculation, so that the interrogator

might still be unable to make the right identification. On the other hand, he might be able to guess right without any questioning, by clairvoyance. With E.S.P. anything may happen.

If telepathy is admitted it will be necessary to tighten our test up. The situation could be regarded as analogous to that which would occur if the interrogator were talking to himself and one of the competitors was listening with his ear to the wall. To put the competitors into a ' telepathy-proof room ' would satisfy all requirements.

7. *Learning Machines.*

The reader will have anticipated that I have no very convincing arguments of a positive nature to support my views. If I had I should not have taken such pains to point out the fallacies in contrary views. Such evidence as I have I shall now give.

Let us return for a moment to Lady Lovelace's objection, which stated that the machine can only do what we tell it to do. One could say that a man can ' inject ' an idea into the machine, and that it will respond to a certain extent and then drop into quiescence, like a piano string struck by a hammer. Another simile would be an atomic pile of less than critical size : an injected idea is to correspond to a neutron entering the pile from without. Each such neutron will cause a certain disturbance which eventually dies away. If, however, the size of the pile is sufficiently increased, the disturbance caused by such an incoming neutron will very likely go on and on increasing until the whole pile is destroyed. Is there a corresponding phenomenon for minds, and is there one for machines ? There does seem to be one for the human mind. The majority of them seem to be ' sub-critical ', *i.e.* to correspond in this analogy to piles of sub-critical size. An idea presented to such a mind will on average give rise to less than one idea in reply. A smallish proportion are super-critical. An idea presented to such a mind may give rise to a whole ' theory ' consisting of secondary, tertiary and more remote ideas. Animals minds seem to be very definitely sub-critical. Adhering to this analogy we ask, ' Can a machine be made to be super-critical ?'

The ' skin of an onion ' analogy is also helpful. In considering the functions of the mind or the brain we find certain operations which we can explain in purely mechanical terms. This we say does not correspond to the real mind : it is a sort of skin which we must strip off if we are to find the real mind. But then in what remains we find a further skin to be stripped off, and so on.

Proceeding in this way do we ever come to the ' real ' mind, or do we eventually come to the skin which has nothing in it ? In the latter case the whole mind is mechanical. (It would not be a discrete-state machine however. We have discussed this.)

These last two paragraphs do not claim to be convincing arguments. They should rather be described as ' recitations tending to produce belief '.

The only really satisfactory support that can be given for the view expressed at the beginning of § 6, will be that provided by waiting for the end of the century and then doing the experiment described. But what can we say in the meantime ? What steps should be taken now if the experiment is to be successful ?

As I have explained, the problem is mainly one of programming. Advances in engineering will have to be made too, but it seems unlikely that these will not be adequate for the requirements. Estimates of the storage capacity of the brain vary from 10^{10} to 10^{15} binary digits. I incline to the lower values and believe that only a very small fraction is used for the higher types of thinking. Most of it is probably used for the retention of visual impressions. I should be surprised if more than 10^9 was required for satisfactory playing of the imitation game, at any rate against a blind man. (Note—The capacity of the *Encyclopaedia Britannica*, 11th edition, is 2×10^9.) A storage capacity of 10^7 would be a very practicable possibility even by present techniques. It is probably not necessary to increase the speed of operations of the machines at all. Parts of modern machines which can be regarded as analogues of nerve cells work about a thousand times faster than the latter. This should provide a ' margin of safety ' which could cover losses of speed arising in many ways. Our problem then is to find out how to programme these machines to play the game. At my present rate of working I produce about a thousand digits of programme a day, so that about sixty workers, working steadily through the fifty years might accomplish the job, if nothing went into the waste-paper basket. Some more expeditious method seems desirable.

In the process of trying to imitate an adult human mind we are bound to think a good deal about the process which has brought it to the state that it is in. We may notice three components,

(*a*) The initial state of the mind, say at birth,

(*b*) The education to which it has been subjected,

(*c*) Other experience, not to be described as education, to which it has been subjected.

Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's ? If this were then subjected to an appropriate course of education one would obtain the adult brain. Presumably the child-brain is something like a note-book as one buys it from the stationers. Rather little mechanism, and lots of blank sheets. (Mechanism and writing are from our point of view almost synonymous.) Our hope is that there is so little mechanism in the child-brain that something like it can be easily programmed. The amount of work in the education we can assume, as a first approximation, to be much the same as for the human child.

We have thus divided our problem into two parts. The child-programme and the education process. These two remain very closely connected. We cannot expect to find a good child-machine at the first attempt. One must experiment with teaching one such machine and see how well it learns. One can then try another and see if it is better or worse. There is an obvious connection between this process and evolution, by the identifications

Structure of the child machine	=	Hereditary material
Changes ,, ,,	=	Mutations
Natural selection	=	Judgment of the experimenter

One may hope, however, that this process will be more expeditious than evolution. The survival of the fittest is a slow method for measuring advantages. The experimenter, by the exercise of intelligence, should be able to speed it up. Equally important is the fact that he is not restricted to random mutations. If he can trace a cause for some weakness he can probably think of the kind of mutation which will improve it.

It will not be possible to apply exactly the same teaching process to the machine as to a normal child. It will not, for instance, be provided with legs, so that it could not be asked to go out and fill the coal scuttle. Possibly it might not have eyes. But however well these deficiencies might be overcome by clever engineering, one could not send the creature to school without the other children making excessive fun of it. It must be given some tuition. We need not be too concerned about the legs, eyes, etc. The example of Miss *Helen Keller* shows that education can take place provided that communication in both directions between teacher and pupil can take place by some means or other.

We normally associate punishments and rewards with the teaching process. Some simple child-machines can be constructed or programmed on this sort of principle. The machine has to be so constructed that events which shortly preceded the occurrence of a punishment-signal are unlikely to be repeated, whereas a reward-signal increased the probability of repetition of the events which led up to it. These definitions do not presuppose any feelings on the part of the machine. I have done some experiments with one such child-machine, and succeeded in teaching it a few things, but the teaching method was too unorthodox for the experiment to be considered really successful.

The use of punishments and rewards can at best be a part of the teaching process. Roughly speaking, if the teacher has no other means of communicating to the pupil, the amount of information which can reach him does not exceed the total number of rewards and punishments applied. By the time a child has learnt to repeat ' Casabianca ' he would probably feel very sore indeed, if the text could only be discovered by a ' Twenty Questions ' technique, every ' NO ' taking the form of a blow. It is necessary therefore to have some other ' unemotional ' channels of communication. If these are available it is possible to teach a machine by punishments and rewards to obey orders given in some language, *e.g.* a symbolic language. These orders are to be transmitted through the ' unemotional ' channels. The use of this language will diminish greatly the number of punishments and rewards required.

Opinions may vary as to the complexity which is suitable in the child machine. One might try to make it as simple as possible consistently with the general principles. Alternatively one might have a complete system of logical inference ' built in '.[1] In the latter case the store would be largely occupied with definitions and propositions. The propositions would have various kinds of status, *e.g.* well-established facts, conjectures, mathematically proved theorems, statements given by an authority, expressions having the logical form of proposition but not belief-value. Certain propositions may be described as ' imperatives '. The machine should be so constructed that as soon as an imperative is classed as ' well-established ' the appropriate action automatically takes place. To illustrate this, suppose the teacher says to the machine, ' Do your homework now '. This may cause " Teacher says ' Do your homework now ' " to be included amongst the well-established facts. Another such fact might be,

[1] Or rather ' programmed in ' for our child-machine will be programmed in a digital computer. But the logical system will not have to be learnt.

" Everything that teacher says is true ". Combining these may eventually lead to the imperative, ' Do your homework now ', being included amongst the well-established facts, and this, by the construction of the machine, will mean that the homework actually gets started, but the effect is very satisfactory. The processes of inference used by the machine need not be such as would satisfy the most exacting logicians. There might for instance be no hierarchy of types. But this need not mean that type fallacies will occur, any more than we are bound to fall over unfenced cliffs. Suitable imperatives (expressed *within* the systems, not forming part of the rules *of* the system) such as ' Do not use a class unless it is a subclass of one which has been mentioned by teacher ' can have a similar effect to ' Do not go too near the edge '.

The imperatives that can be obeyed by a machine that has no limbs are bound to be of a rather intellectual character, as in the example (doing homework) given above. Important amongst such imperatives will be ones which regulate the order in which the rules of the logical system concerned are to be applied. For at each stage when one is using a logical system, there is a very large number of alternative steps, any of which one is permitted to apply, so far as obedience to the rules of the logical system is concerned. These choices make the difference between a brilliant and a footling reasoner, not the difference between a sound and a fallacious one. Propositions leading to imperatives of this kind might be " When Socrates is mentioned, use the syllogism in Barbara " or " If one method has been proved to be quicker than another, do not use the slower method ". Some of these may be ' given by authority ', but others may be produced by the machine itself, *e.g.* by scientific induction.

The idea of a learning machine may appear paradoxical to some readers. How can the rules of operation of the machine change ? They should describe completely how the machine will react whatever its history might be, whatever changes it might undergo. The rules are thus quite time-invariant. This is quite true. The explanation of the paradox is that the rules which get changed in the learning process are of a rather less pretentious kind, claiming only an ephemeral validity. The reader may draw a parallel with the Constitution of the United States.

An important feature of a learning machine is that its teacher will often be very largely ignorant of quite what is going on inside, although he may still be able to some extent to predict his pupil's behaviour. This should apply most strongly to the

later education of a machine arising from a child-machine of well-tried design (or programme). This is in clear contrast with normal procedure when using a machine to do computations: one's object is then to have a clear mental picture of the state of the machine at each moment in the computation. This object can only be achieved with a struggle. The view that 'the machine can only do what we know how to order it to do',[1] appears strange in face of this. Most of the programmes which we can put into the machine will result in its doing something that we cannot make sense of at all, or which we regard as completely random behaviour. Intelligent behaviour presumably consists in a departure from the completely disciplined behaviour involved in computation, but a rather slight one, which does not give rise to random behaviour, or to pointless repetitive loops. Another important result of preparing our machine for its part in the imitation game by a process of teaching and learning is that 'human fallibility' is likely to be omitted in a rather natural way, *i.e.* without special 'coaching'. (The reader should reconcile this with the point of view on pp. 24, 25.) Processes that are learnt do not produce a hundred per cent. certainty of result; if they did they could not be unlearnt.

It is probably wise to include a random element in a learning machine (see p. 438). A random element is rather useful when we are searching for a solution of some problem. Suppose for instance we wanted to find a number between 50 and 200 which was equal to the square of the sum of its digits, we might start at 51 then try 52 and go on until we got a number that worked. Alternatively we might choose numbers at random until we got a a good one. This method has the advantage that it is unnecessary to keep track of the values that have been tried, but the disadvantage that one may try the same one twice, but this is not very important if there are several solutions. The systematic method has the disadvantage that there may be an enormous block without any solutions in the region which has to be investigated first. Now the learning process may be regarded as a search for a form of behaviour which will satisfy the teacher (or some other criterion). Since there is probably a very large number of satisfactory solutions the random method seems to be better than the systematic. It should be noticed that it is used in the analogous process of evolution. But there the systematic method is not possible. How could one keep track

[1] Compare Lady Lovelace's statement (p. 450), which does not contain the word 'only'.

of the different genetical combinations that had been tried, so as to avoid trying them again ?

We may hope that machines will eventually compete with men in all purely intellectual fields. But which are the best ones to start with ? Even this is a difficult decision. Many people think that a very abstract activity, like the playing of chess, would be best. It can also be maintained that it is best to provide the machine with the best sense organs that money can buy, and then teach it to understand and speak English. This process could follow the normal teaching of a child. Things would be pointed out and named, etc. Again I do not know what the right answer is, but I think both approaches should be tried.

We can only see a short distance ahead, but we can see plenty there that needs to be done.

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II.—SUBJECT AND PREDICATE

By Peter Thomas Geach

In most logical treatises the subject-predicate relation is dealt with very inadequately. Traditional 'Aristotelian' logic is full of mistakes and confusions; and modern logicians have often introduced would-be precise distinctions that are in fact imprecise or completely unfounded. I hope that in this paper I have at least avoided certain common and fundamental mistakes. The writers that I have found most useful are Aquinas and Frege.[1]

The commonest mistake is to confuse a sign and what it signifies; sometimes this is just an inaccurate mode of expression, which can be discounted, but in very many authors, from Aristotle to Russell, there is a real confusion of thought. One very often simply cannot tell whether '(logical) subject' means a thing or its name; whether a predicate is supposed to be a property or the words that express it. To avoid this confusion, I shall invariably use 'subject' and 'predicate' as linguistic terms; I shall say, *e.g.* that the noun 'Peter' and the expression 'was an Apostle' are respectively subject and predicate in the sentence 'Peter was an Apostle'; and I shall never call a man (or even a sense-datum) a logical subject, nor call a property a predicate. I shall say, however, that in the sentence just given the expression 'was an Apostle' is predicated of Peter, not of his name; for it is he, not his name, that is asserted to have been an Apostle. In saying that something 'is a predicate of' Peter or 'is predicated of' him, I mean only that it is said of him in some significant sentence, whether this sentence is true or not. On the other hand, when I say that the predicate 'was an Apostle' *applies* to Peter, I am asserting that he was in fact an Apostle.

I accordingly define the terms 'subject' and 'predicate' as follows:

A *predicate* is an expression that gives us an assertion about something if we attach it to another expression that stands for what we are making the assertion about.

[1] All references to Aquinas are to the *Summa Theologica*, Parts I and III; they are prefaced simply by 'Ia', 'IIIa'. Titles of Frege's works are abbreviated as follows: *Gl.A.* = *Die Grundlagen der Arithmetik*; *Gg.A.* = *Grundgesetze der Arithmetik*; *B.* = *Begriffsschrift*; *B.G.* = *Ueber Begriff und Gegenstand.*

A *subject* (of an assertion) is an expression to which there is attached a predicate, so that the two together form an assertion about what the subject stands for.

A predicate is thus *attached to* a subject, but *predicated of* what the subject stands for. Apart from the avoidance of the usual ambiguities, the above definitions are quite ordinary; but I shall try to show that correct application of them often leads to very different results from the traditional analysis.

In the first place, we must not think that a sentence that has one subject-predicate analysis cannot have more than one. 'Peter struck Malchus' asserts something about Peter and something different about Malchus, and we may take either 'Peter' or 'Malchus' as subject of the sentence. Aristotle observed long ago that a logical subject need not be in the nominative case.[1] A traditional logician might insist that only 'Peter' can be taken as the subject; and a modern logician might say that we have here a relational sentence, not admitting of subject-predicate analysis; both would be making the mistake of regarding *an* analysis of a sentence as *the* analysis. If the same assertion could not be analysed in different ways, logic would be hopelessly crippled.

The name of an object can, by our definition, be used as logical subject of an assertion about the object; but what is logically prior to this is the use of a name simply to name something—to express recognition that the thing so named is present. An act of naming is of course not an assertion; it may be correct or incorrect, but not, strictly speaking, true or false; it does, however, 'express a complete thought', as grammarians say about sentences—it has a sort of independent sense. Naturally the sense of a name used this way is not independent of the language, or of the situation that makes such use appropriate; but it is independent of any verbal context expressed or understood—it is not like the sense of a fragmentary expression that answers a spoken or unspoken question. The view put forward by Frege and Wittgenstein,[2] that it is only in the context of a sentence that a name stands for something, seems to me to be certainly wrong.

It is noteworthy that common nouns admit of this independent use no less than proper names. A common noun standing by itself may be used to refer to any individual of a given sort; *e.g.* 'cat' may be used to label any cat. It is misleading to call common nouns class-names; if I use the common noun

[1] *Prior Analytics*, i. 36. [2] *Gl.A.*, p. 76. *Tractatus*, 3.3.

' cat ' as a name, I am naming a particular cat, not the class of all cats. I may refer to the very same object by saying ' hullo, Jemima ! ' as by saying ' hullo, cat ! ' ; but the latter greeting refers to Jemima less determinately than the former, for it would serve equally well for welcoming some other cat.

If we remove a proper noun from a sentence, the *whole* of the rest of the sentence supplies what we assert about the object so named, and is thus, by our definition, the predicate attached to that noun as subject. In ' Peter struck Malchus ' the predicate is ' — struck Malchus ' or ' Peter struck — ', according as we take ' Peter ' or ' Malchus ' as the subject ; for we are asserting of Peter that he *struck Malchus*, and of Malchus that *Peter struck* him.

From my definitions it follows, not only that a name can be a logical subject, but also that it cannot, without a radical change of sense, be a logical predicate. A name has a complete sense, and can stand by itself ; a predicate is what is left of a sentence when the subject is removed, and thus essentially contains an empty place to be filled by a subject. (It must not be thought that a predicate can occur in a sentence only as attached to a subject ; but a predicate never gives us a complete sense except in the context of a sentence.) A predicate can never be used as a name, not even for a thing that it applies to ; the predicate ' Peter struck — ' applies to Malchus, but cannot be used to name him.

Again, every predicate has a contradictory ; and by attaching contradictory predicates to the same subject we get a pair of contradictory assertions. For names there are no such pairs of contradictories. A mistake in naming can be corrected, like a mistake in asserting ; but whereas the denial of an assertion is itself an assertion, the denial of a name is not itself an act of naming. A child may say ' Jemima ' when it is another cat, or ' cat ' when it is a dog ; if I say ' No, not Jemima, another cat ' or ' No, not a cat, a dog ', I am not using ' not Jemima ' or ' not a cat ' as a name. And we can never get the contradictory of a sentence by substituting some other name for the subject. We can contradict ' Peter struck Malchus ' by keeping the subject ' Malchus ' and replacing the predicate by its contradictory ' Peter did not strike — ' ; we could not contradict it by keeping the predicate ' Peter struck —' and substituting some other name for ' Malchus '.

Finally, the tense of a predication is the tense of the predicate, not of the subject. ' Peter struck Malchus ' is in the past tense because the predicate ' Peter struck — ' is ; the name ' Malchus ' has no tense.

We must thus make an absolute distinction between names and predicates ; if the same expression is now a name, now a predicate, that is an accidental defect of language. The fundamental mistake of the traditional logic of terms is that it explicitly rejects this distinction ; every ' term ' is supposed to be capable of standing either as subject or as predicate, without any change of sense. This mistake accounts for the traditional hesitation whether to admit negative ' terms ' or not ; ' Aristotelian ' logic uses the word ' term ' to cover both names and predicates, and therefore cannot make up its mind whether to admit negative terms, because predicates have contradictories, or to deny them admission, because names have no contradictories.

Another result of this mistake about ' terms ' is a false view of the copula. Two names by themselves cannot form a sentence; ' Peter Malchus ' asserts nothing. To get an assertion about Peter and Malchus, we must join their names together by means of some expression for a relation, *e.g.* the verb ' struck '. Traditional logic accordingly holds that a predication cannot be formed simply out of two terms, subject and predicate ; we need also a copula, to express a logical relation. Modern logicians, so far from rejecting this idea, try to make it more precise ; they distinguish different brands of copula—the copulas of identity, class-inclusion, and class-membership. There might certainly be various relations that the copula stood for, if it stood for a relation at all. But in fact no link is needed to join subject and predicate ; the incomplete sense of the predicate is completed when the subject is inserted in the empty place, *e.g.* when ' Malchus ' is inserted in the blank of ' Peter struck — ' ; no *tertium quid* comes in. Those who treat the copula as a relational expression rightly take it for granted that such an expression has its sense completed simply by the names of the related objects, and needs no links to join it to those names ; thus, the sense of the verb ' struck ' is completed simply by adding the names ' Peter ' and ' Malchus '. In just the same way, a qualifying expression, a predicate, has its sense completed simply by the name of the object qualified, and needs no link to join it to that name.

The grammatical copula is logically significant only when it serves as a sign of tense. In ' Peter struck Malchus ' the tense is shown by an inflexion of the verb ; in ' Malchus was struck by Peter ', what we are asserting about Malchus is given in the words ' struck by Peter ', and the verb ' was ' does not link this predicate to ' Malchus ' as subject but merely supplies an incidental reference to past time—*compositioni intellectus*

adiungitur tempus.[1] Apart from its thus bringing out the temporal side-reference (*consignificatio*) of the predicate in a separate word, the use of a copulative verb is of interest only to grammarians, not to logicians. The 'Aristotelian' tradition is quite mistaken in attributing special importance to this grammatical form; as we saw, Aristotle himself did not make this mistake. If a predicate is formed out of the verb 'to be' and a grammatical complement, the complement bears the whole predicative force; the copulative verb is logically unnecessary, as Hobbes[2] saw, and thus the idiom of some languages dispenses with it. The temporal *consignificatio* could be expressed by adverbs like 'formerly' and 'now' instead of tenses of the verb 'to be'—'Malchus long ago struck by Peter', instead of 'Malchus was struck by Peter'; and here there is no appearance that 'long ago' joins the predicate 'struck by Peter' to the subject 'Malchus'.

When a common noun is used predicatively it is not being used to name an object; it is senseless to ask which object it stands for. If I am using 'dog' as a name, it makes sense to ask which dog I am naming; but if I say 'Jemima isn't a dog', it would be senseless to ask 'which dog is it that Jemima isn't?' I shall here borrow a useful pair of terms from Aquinas[3]; a noun or noun-phrase is used *materially* if it stands for an object (*suppositum, res naturae*), but *formally* if it is a predicate expressing a property (*forma, natura, essentia*). The contrast I express by the words 'object' and 'property' corresponds to Frege's distinction between *Gegenstand* and *Begriff*. If a noun or noun-phrase is used by itself to name some object in the environment, then its use must be regarded as material, whether it is a proper noun or not.

In sentences, genuine proper nouns can never be logical predicates; a proper noun stands for a definite object, and its use is thus material, not formal. In a sentence like 'that is Jemima' the proper noun is not a logical predicate attached to the subject 'that'; the sentence is not an assertion about an object named 'that', but an act of naming. A demonstrative pronoun is not a name; we may say that it points to (*demonstrat*) an object rather than stands for it (*supponit*).[4] Again, in a predicate like 'is a Napoleon of crime', 'Napoleon' is used as a common noun, as the indefinite article shows.

A definite description may occur in a sentence either materially, as a name, or formally, as a predicate; in 'the Pope is an Italian'

[1] Ia Q. 85 art. 5 ad 2 um.
[2] *Leviathan*, chap. 46.
[3] Ia Q. 13 art. 12.
[4] IIIa Q. 78 art. 5.

I use ' the Pope ' materially, whereas in ' Pius XII is the Pope ' I use ' the Pope ' formally. *Prima facie*, a similar distinction can be drawn between uses of an ' indefinite ' description like ' a dog '. In ' Jemima is not a dog ' the description is certainly being used formally ; but in ' Jemina was chased by a dog ' it seems to be used materially, especially as the question ' which dog ? ' here makes sense ; it seems to stand for an object, about which we can ask further questions. We shall see reason later on to adopt this *prima facie* view ; but it will turn out not to be acceptable in the simple form that ordinary language suggests.

In existential sentences like ' a dragon exists ' the grammatical subject is used formally ; its sense is predicative, as we see if we write instead ' something is a dragon '. Aquinas pointed out that the verb ' is' in ' there is a God ', ' there is evil ' is not a predicate expressing actuality (*actus essendi*), any more than it is in ' my idol is God ' or ' war is an evil ' ; it just shows that we have an affirmative predication (*compositio*) [1] ; and the phrase beginning with ' is ' is a logical predicate, for ' there is — ' means ' something is — '. Similarly for definite descriptions ; ' the King of England exists ' ordinarily means ' somebody is the King of England ' ; the description is not used materially, to stand for George VI, but formally, to express the property of being the King of England.

It is not only in existential sentences that the grammatical subject is in fact a noun used formally or predicatively. For example, ' the Earth's satellite is one ' is not a predication about the Moon, for ' the Moon is one ' has no sense, or at any rate not the same sense ; it means rather ' something is a satellite of the Earth, and is such that nothing else is a satellite of the Earth '. Again, consider the assertion ' God is three ', of which Aquinas gives a specially clear account. The numeral ' three ' does not express a divine attribute, like the adjective ' wise ' ; and ' God ' does not stand, in this assertion, for any divine Person ; ' God ' stands here for the divine nature, and what is asserted is that this nature is found in three *supposita* or *res naturae*.[2] The sentence is in fact synonymous with ' there are three who are God ', where ' God ' is explicitly predicative.

In treating of what I call formal use, of nouns or noun-phrases, modern logicians usually make a sharp distinction between the senses of the copula when it is followed by a definite description like ' the King of France ' and when it is followed by an indefinite description like ' a man '. Even Frege held one

[1] Ia Q. 3 art. 2 ad 2 um. ; Q. 48 art. 2 ad 2 um.
[2] Ia Q. 30 art. 3 ; Q. 31 art. 1 ad 3 um, ad 5 um ; Q. 39 art. 6.

part of this view; namely, that when 'is' stands between a name and a definite description, or two definite descriptions, both of the expressions it joins stand for objects, and 'is' expresses a relation of identity, or the absence of a relation of difference, between the objects.[1] Modern logicians speak in this case of a 'copula of identity', as opposed to the 'copula of class-membership' in 'is a man'. But it would be as easy to maintain that there is a 'copula of identity' in 'is a man'; we could say that this predicate has the sense of 'is identical with some man'. We have moreover already rejected the view that the copula stands for a relation of any sort.

It is a mistake to regard identity and diversity as relations between objects; to do so is to be misled by grammar. If the question is how A and B are related, 'A is friendly with B' and 'A is taller than B' are sensible answers, but the grammatically similar sentences 'A is identical with B' and 'A is other than B' would be silly answers. These last two sentences are about the names 'A' and 'B', not about the objects they stand for; they tell us whether or not there is an object named by both 'A' and 'B'. It is a great pity that Frege recanted this, his original view of identity, which was later adopted by Wittgenstein.[2]

It does not follow that we ought to write:

'A' is identical with 'B'; 'A' is other than 'B'.

For these sentences would have quite a different sense. A similar sentence that is about a name when it seems to be about an object is: 'Peter was so called after a rock'; the sense of this is that the name 'Peter' was given to somebody by comparison to a rock; but we could not give this sense by writing:

(The name) 'Peter' was so called after a rock.

The predicate 'is *the* King of France' is in truth definable in terms of the predicate 'is *a* King of France'; its sense is: 'is a King of France (and is somebody) except for whom nobody is a King of France'. (The second part of this conjunction of predicates is needed in order to exclude the possibility that there should be two Kings at once in France, as there were in Sparta.) We see that here the noun-phrase 'King of France' is used formally. This predicate is none the less a predicate because it could not apply to more than one thing, nor even because in fact it applies to nothing; for in saying 'nobody is the King of France' we are using this very predicate.

[1] *B.G.* p. 194. [2] *B.* § 8. *Tractatus* 4.241-4.243, 5.53-5.534

In the predicate ' *is somebody except for whom nobody* is a King of France ', the words in italics might seem to refer to a relation of diversity between objects. In fact, they are an operator. By an operator I mean a logical sign such that the result of combining it with one or more expressions of a given sort is a further expression of the same sort. Thus, the sign of negation is an operator ; it may be combined with a sentence to give us a sentence, or with a predicate to give us another predicate. Again, the conjunctions ' and ', ' or ', ' if ' and so on are operators ; any of them may be used to form a sentence out of a pair of sentences, or a predicate out of a pair of predicates (*e.g.* the predicate ' —is a man if able to laugh ' out of the predicates ' — is a man ' and ' — (is) able to laugh '). And the words ' is somebody except for whom nobody — ', which we may call the sign of exclusion, may be combined with a predicate like ' — is a King of France ' to form a new predicate. An operator is not a predicate ; Wittgenstein has pointed out the importance of distinguishing operators from other sorts of sign.[1]

We may express the relation between material and formal uses of a noun by saying that the formal use is a predicate and the material use is the corresponding *descriptive name* ; a descriptive name names an object if and only if it corresponds to a predicate that applies to the object. A descriptive name must always be sharply distinguished from a predicate. Language supplies us with a device for turning predicates that are not nouns (or noun-phrases) into the corresponding descriptive names : *viz.* to prefix to the predicate some such words as ' he who ', ' that which ', ' thing that '. Thus, from the predicate ' Peter struck — ' we may form the name ' thing that Peter struck ', which is a name of Malchus's ear. If we attach such expressions to a predicate that is a noun or noun-phrase, we seem to get a redundant expression ; for the names ' thing that is a cat ' and ' one who is the King of France ' reduce to ' cat ' and ' the King of France '. In fact, there is no redundancy ; the complex name contains as part of itself a noun (-phrase) used *formally*, and is synonymous with the same noun (-phrase) used *materially* ; and thus the added words bring out a part of the logical structure that must otherwise be gathered from the context, since many languages do not show by any inflexion that a noun is being used predicatively. (Polish does use a case-ending for this purpose ; nouns used predicatively are put in the instrumental case. I think it is interesting that for pseudo-predicates after a demonstrative pronoun, *e.g.* ' this is Jemima ', ' this is a cat ',

[1] *Tractatus*, 5.22-5.251.

the instrumental case is ordinarily *not* used.) The expressions 'he who' and so on are not operators, in the sense I have explained; for they turn a predicate into a sign of a fundamentally different kind—a name—not into another predicate.

If a predicate has no application, the corresponding descriptive name has nothing to name, and its use as a name is always incorrect; for instance, the predicate '—is a dragon' applies to nothing, and the act of naming expressed by 'a dragon' is always mistaken. Such a descriptive name cannot legitimately be used as a logical subject. For a predicate asserts nothing till it is attached to the name of an object; if it is attached to a name that names nothing, it gives us no information at all, true or false, about anything. To put it another way: the question *an sit, e.g.* 'is anybody the King of France?' is logically prior to the question *quo modo sit vel non sit, e.g.* 'is the King of France bald or not?'; if the first question is answered negatively, the second does not arise, and the proper answer to it is not 'yes' or 'no', but rather to point out why it does not arise—'nobody is the King of France'. This view does not involve that the sentence last quoted has no truth-value; for when we say 'nobody is the King of France', we are using the description not materially, as if it named somebody, but formally, to express the property of being the King of France.

In a symbolic language it is highly undesirable that a sentence should possibly not have a truth-value, because it contains a name that may stand for nothing. There are various ways of avoiding this difficulty. First, we may postpone the use of a definite description as a name till we have proved the corresponding existential assertion. Secondly, we may use definite descriptions in a rather different way from the ordinary everyday use; if there is just one X, 'the thing that is X' will stand for that one X; but if there is no X, or more than one X, 'the thing that is X' will name some other object, whose existence is anyhow assured. (Frege uses this method.[1]) Thirdly, we may altogether avoid the use of definite descriptions as names, retaining only something analogous to their formal use; our symbolism will then contain sentences like 'somebody is bald and is the King of France', but not like 'the King of France is bald'.

I shall call a predicate a *first-order* predicate when it can significantly be attached to the name of an object; all the predicates we have so far recognised as such have been first-order predicates, but we shall later on introduce the term 'second-order predicate'. I call a first-order predicate *singular* when it does

[1] *Gg.A.*, vol. i, § 11 (pp. 19-20).

not give us any information, true or false, unless the name it is attached to is one whose sense requires that it be unshared (*e.g.* a proper name, or a definite description used materially). All the first-order predicates we have so far considered have been singular predicates. Take for example the predicate ' — is wise ' ; if we try to attach this to a name whose sense allows of multiple reference, *e.g.* ' snub-nosed philosopher ', the result is neither true nor false, for it has no definite truth-conditions ; there may be more than one snub-nosed philosopher, and in that case it is indeterminate who is being asserted to be wise. Thus ' snub-nosed philosopher is wise ' is not a sentence. It remains doubtful so far whether there are any non-singular first-order predicates ; if all first order predicates are singular, then no predication can be made by attaching a predicate to such a name as ' snub-nosed philosopher ' ; in that case, such a name can indeed be used by itself in an act of naming, but can never be a logical subject, and the words ' snub-nosed philosopher' in a sentence must always be taken formally, not materially.

There are certain *prima facie* difficulties over the concept of singular predicates. If we take any singular predicate, grammar suggests that it *can* be truly or falsely attached to a subject that is not an unshared name. For instance, if we may take ' Malchus ' as logical subject of ' Peter struck Malchus ', surely we may take ' some man ', which is not an unshared name as logical subject of ' Peter struck some man ' ; and in that case the predicate ' Peter struck — ' is not singular. But if ' some man ' is a logical subject in ' Peter struck some man ', what does it stand for ? Nor for Malchus ; Peter did in fact strike Malchus, but our sentence does not say so. Nor, in fact, for any definite man ; for in saying ' Peter struck some man ', we are not saying of any definite man that Peter struck *him*. Nor can we say that ' some man ' stands here just for *some* man, but not for any definite man ; for it would be self-contradictory, and it is certainly not what we mean, to say that Peter struck *some* man but not any definite man. Nor can we say that ' some man ' stands for the class of all men ; ' Peter struck the class of all men ' is absurd. Could we perhaps say that here ' man ' stands for the property of being a man ? This would not mean that we were asserting that Peter struck some property of being a man, which would be nonsense ; it would just be a way of saying that in ' Peter struck some man ' the noun ' man ' is used predicatively or formally, and does not stand for an object struck by Peter. It seems reasonable, in fact, to say that what we mean is : ' something was a man and was struck by Peter ' ; and

here the predicate ' (was) struck by Peter ', which has the same sense as ' Peter struck — ', is not attached to ' man ', as a predicate to a logical subject, but is conjoined with ' (was) a man ' to form a compound predicate. So our analysis confirms the notion of a singular predicate ; if we take a true or false sentence where ' Peter struck — ' seems to be attached to a subject other than an unshared name, we get into inextricable difficulties over the question what this subject stands for.

Again, if ' every man ' were the logical subject in ' every man is wise ', then by attaching the contradictory of the predicate to this subject we should get the contradictory of ' every man is wise ' ; but ' every man is not wise ' is the contrary of this assertion, not the contradictory. We have thus again found nothing to go against our view that ' is wise ' is a singular predicate ; that any logical subject to which it is attached is a name necessarily unshared.

There is a certain difficulty over the analysis of ' Jemima was chased by a dog ' as meaning ' something was a dog and chased Jemima '. In this analysis, ' dog ' is used formally or predicatively, as it is in ' Jemima isn't a dog ' ; and *prima facie* ' dog ' is used quite differently in ' Jemima was chased by a dog ' and ' Jemima isn't a dog ' ; one is strongly inclined to say that ' dog ' is used formally only in the latter sentence, whereas in the former it stands for an object. We can hold this *prima facie* view without prejudice to our decision that such a predicate as ' Jemima was chased by — ' can be attached only to an unshared name. ' Jemima was chased by *a* dog ' means ' Jemima was chased by *some* dog ' ; and so, even if ' dog ' is here a name, the predicate attached to it is not the singular predicate ' Jemima was chased by — ' but rather ' Jemima was chased by *some* — ' We have seen that the phrase ' some dog ' is not a complex name ; and, on the other hand, we may certainly treat ' Jemima was chased by *some* — ' as a complex predicate, whatever we take ' dog ' to stand for ; we get a contradictory assertion if we attach the contradictory predicate ' Jemima was chased by *no* — ' to the same noun. But if ' dog ' is here a name, what does it stand for ? Since ' dog ' used by itself in an act of naming may stand for any dog that happens to be about, we must say, I think, that if ' dog ' is used as a name in a sentence it must stand for any dog you like. All the same, it is paradoxical to say that ' Jemima was chased by *some* dog ' is an assertion about *every* dog. The solution I wish to offer is best postponed, since it is difficult and controversial.

All that I have been doubting is whether ' something was a

dog and chased Jemima' has quite the same sense as 'Jemima was chased by a dog'; not whether it is in itself a well-constructed sentence. And if I were shown to be wrong in holding that 'dog' in 'Jemima was chased by a dog' is a name, then I should not doubt that 'something was a dog and chased Jemima' gives a correct analysis of this sentence.

The question might be asked what is the subject of the compound predicate 'was a dog and chased Jemima' in this analysis. The answer must be that it has no logical subject. The grammatical subject 'something' is not a name of an object to which this predicate applies, and is therefore not a logical subject. Similarly, existential assertions like 'there is a dragon' have no logical subject; for 'there' is not a name of an object that is being said to be a dragon, and 'dragon' is, as we saw, being used predicatively.

Expressions like 'there is', 'something', 'everything', 'nothing' are incomplete in sense, but not in quite the same way as a first-order predicate like 'Peter struck —' or '(is) white'; for their sense cannot be completed by attaching them to a name, but only by attaching them to a first-order predicate—'Peter struck/ nothing', 'something/ is white'. To adapt a term of Frege's, we may perhaps call them *second-order* predicates. When we say 'there is a dragon' or 'a dragon exists', we are not predicating of an object named by 'dragon' that it enjoys existence or is alive; we are asserting that the property expressed by '(is) a dragon' has the property of being exemplified, which is expressed by the second-order predicate 'there is —' or '— exists'. Similarly, 'everything' and 'nothing' are second-order predicates; if we attach them to a first-order predicate, we assert that the property expressed by that predicate belongs to every object or to no object. Again, the assertion 'God is three' does not mean that there is a divine attribute expressed by the numeral 'three', but that the nature expressed by '(— is) God' has the property of being found in three *res naturae* or *supposita*; thus in this sentence '— is three' is what I am calling a second-order predicate.

As Frege remarks, our language here raises inescapable difficulties. If I say 'the property of being a man is exemplified'; it might be supposed that '(is) exemplified' expresses a property of the property of being a man, and is thus a second-order predicate. But this would be a mistake; for we cannot attach '(is) exemplified' to a first-order predicate, as we can attach a genuine second-order predicate like 'something'; 'Peter struck/ something' is a possible sentence, 'Peter struck/ (is)

exemplified ' is not. Moreover, paradoxical as it sounds, the expression ' the property of being a man ' does not stand for the property of being a man ; the adjective ' human ', which does stand for the property, is predicable of every man, but ' the property of being a man ' is not thus predicable—we cannot say ' Socrates is the property of being a man ', as we say ' Socrates is human '. In ' *the property of being* a man *is exemplified* ' the whole italicised part (not just the last two words) expresses a property of the property of being a man ; this whole expression is a second-order predicate, containing an empty space that must be filled with a first-order predicate (such as ' man ' used formally, or ' in London '). Now ' the property of being—is exemplified ' means no more than ' something is — ' ; so our talk about properties of objects and properties of properties does not give a genuine explanation of the difference between first-order and second-order predicates, but only leads to circumlocutions. But the concepts we are dealing with are too simple for a proper analysis ; and circumlocutions may help to direct the reader's attention the right way, given a little co-operation on his side.[1] (It is like showing a point on a map by drawing a ring around it.)

Grammar is thus exceedingly liable to mislead us when we are dealing with a second-order predicate. The first-order predicate to which such a predicate is attached is as a rule incapable of being a grammatical subject ; in that case the grammatical predicate will not be the second-order predicate, but a mere fragment of it. Take, *e.g.* the sentence ' wisdom is rare '. The adjective ' rare ' is a mere fragment of the second-order predicate ' that anybody — is rare ', where the blank must be filled with a first-order predicate ; in our sentence, we must understand the predicate ' *has* wisdom ' out of the abstract noun ' wisdom '. (To see that the sense is given by : ' *that anybody has* wisdom is rare ', we must have mastered the use of abstract nouns in ordinary language.)

Sometimes, as we have seen, a grammatical subject is logically predicative ; *e.g.* ' lions ' in ' lions exist ', and ' God ' in ' God is three ' ; here the grammatical predicates ' exist ', and ' is three ' *are* second-order predicates, because they are attached to first-order predicates. This leads to another danger of mistake. Grammatically, the sentences ' God is existent ' and ' God is three ' are like ' God is wise ' ; but unlike ' God is wise ', they do not refer to divine attributes ; the noun ' God ' is here used formally, and we have assertions about the exemplification of the

[1] Frege, *B.G.*, pp. 193, 196-7, 200-1, 204.

nature that the predicate ' — is God ' expresses : ' something is God ', ' there are three who are God '. Thus ' — is existent ' and ' — is three ' are not first-order predicates like ' — is wise ', but second-order predicates ; the synonymous expressions ' something is — ' and ' there are three who are — ' are manifestly such, for the blank must be filled with a first-order predicate. Confusion over this matter is frequent in theological argument ; one need only recall Descartes's ontological proof. (Even Aquinas sometimes gives the false traditional account of ' God exists ' as asserting that God has a certain attribute ; inconsistent as this is with the correct view of existential judgments that he sets forth elsewhere.)

We may now consider Ramsey's criticism of our foundations. In ' Socrates is wise ', why should we not consider ' Socrates ' as a (second-order) predicate applying to the property expressed by ' is wise '—a predicate expressing the property of being a property of Socrates ? In that case, it is arbitrary whether we say that ' is wise ' is predicatively attached to ' Socrates ' or that ' Socrates ' is predicatively attached (as a second-order predicate) to ' is wise ' ; this, however, would destroy our fundamental distinction between names and predicates.[1] The fallacy of this reasoning lies in the inference that, because we may take that which completes the sense of the predicate ' — is wise ' in ' Socrates is wise ' to be either the name ' Socrates ' or the second-order predicate ' Socrates — ', therefore the name and the second-order predicate are identical in sense. For we may get to the same complete sense from the sense of a part by adding expressions of different senses ; what is added to the sense of ' Peter ' in ' Peter shaved Peter ' may be taken to be either the sense of the predicate ' Peter shaved — ' or that of the predicate ' — shaved Peter ', although these predicates have not the same sense. The second-order predicate ' Socrates — ', which expresses the property of being a property of Socrates, is synonymous with the predicate ' it is a property of Socrates that he — ' ; and this certainly has not the same sense as the name ' Socrates ' —it could not be used to name a man, as ' Socrates ' could. Again, the second-order predicate ' Socrates (is) — ' has a contradictory, ' Socrates (is) not — ', and we may get a pair of contradictory assertions by attaching these two predicates to the same first-order predicate, *e.g.* ' wise ' or ' sitting ' or ' on the Acropolis ' ; but we cannot contradict ' Socrates is wise ' by substituting another, ' contradictory ', name for ' Socrates '. So we must sharply distinguish between the name ' Socrates ' and

[1] Ramsey, *The Foundations of Mathematics* ; IV : *Universals*, p. 116.

the second-order predicate 'Socrates (is) —'; and our distinctions between names and predicates, and between first-order and second-order predicates, remain in full force.

When we say that first-order predicates are attached to names, and that to these in turn second-order predicates can be attached, the term 'attached' is used only analogously, not univocally. A first-order predicate that has its sense completed by a name it is attached to does not itself complete the sense of the name; the name already has a complete sense, and can never be used predicatively. On the other hand, in 'something is both red and square' the first-order predicate '— is both red and square' is still used predicatively, even though we are using it in an assertion not *of*, but *about*, the property it stands for; it no more has a complete sense here than the second-order predicate 'something — ' has, and they complete *one another's* sense. We thus have two different, though related, senses of the verb 'attach'.

In constructing a symbolic calculus our distinctions are specially important. The ordinary symbolic rendering of 'everything —', 'something —' and 'nothing —' makes use of variables and quantifiers. In this method, we insert a letter called a *variable* into the blank space of a predicate and thus obtain a *matrix*; 'Peter gave — a penny' becomes the matrix 'Peter gave x a penny'. The second-order predicates 'everything —', 'something —' are turned into the *quantifiers* 'for every (any) x', 'for some x' (or symbolic abbreviations of these); quantifiers, like matrices, contain variables, and what corresponds to attaching a second-order predicate to a first-order predicate is the insertion of the same variable in the quantifier and the matrix; the variable in the matrix is then said to be *bound* by the quantifier. Thus, 'something is a man' becomes 'for some x, x is a man'; 'nothing is a dragon', or 'anything (you like) is not a dragon', becomes 'for any x, x is not a dragon'. Unfortunately variables are a logical topic about which modern logicians talk more nonsense than about almost any other topic. Quine is an honourable exception; I have adopted from his admirably clear account [1] the term 'matrix' instead of the familiar but dangerously ambiguous term 'function'. It is important to notice that the letter 'x' adds nothing to the sense of 'for some x' or of 'x is a man'; it merely shows an incompleteness of sense, a blank waiting to be filled; and the repetition of 'x' in 'for some x, x is a man', just shows that the quantifier and matrix complete *one another's* sense.

[1] *Mathematical Logic*, § 12 (pp. 65-71).

Quantifiers are sometimes called operators ; but they are not operators in the sense in which ' not ' is one. If we add the operator ' not ' to the matrix ' x is a man ', we get ' x is not a man ', which is a matrix of the same sort ; but if we add ' for some x ', we get an expression of a different sort—a sentence. It is thus confusing to call quantifiers operators ; ' second-order matrices ' would be a better name, on the analogy of ' second-order predicates '. And we can see that there is no place for third-order matrices related to quantifiers in some such way as quantifiers are to (first-order) matrices ; for a quantifier contains the same sort of variable as occurs in a first-order matrix, and its sense can be completed only by letting it bind this variable in a first-order matrix. We get no ' hierarchy ' of matrices.

We are now in a position to discuss Russell's Paradox. This is often treated as though it arose from some defect in our concept of *class*, for which we must supply a technical remedy. In fact, it is wholly independent of any talk about classes ; it points, not to the need of some technical device, but to the fundamental distinction between names and predicates.

Let us suppose that in sentences of the form ' A is B ' or ' A is a B ' the subject ' A ' and the predicate ' B ' are signs of the same sort. In that case ' A is (an) A ' will be a possible form (we do seem to get such sentences, *e.g.* ' the King of England is the King of England ') ; and so will ' A is not (an) A '. Consider now the matrix ' x is not (an) x ' ; this will express a certain property of the object indicated by the variable ' x '. Let us express this property by the predicate ' W ', or the matrix ' x is (a) W '. There we have :

For any x, x is (a) W if and only if x is not (an) x.

But on our present hypothesis the predicate ' W ' is itself a possible subject ; ' W is (a) W ' is an admissible sentence. We may therefore substitute ' W ' for the variable ' x ' in the above universally quantified matrix ; and we shall then get Russell's Paradox :

W is (a) W if and only if W is not (a) W.

To avoid this contradiction, we must hold that in ' A is (a) B ' ' A ' and ' B ' are signs of completely different kinds ; that a predicate cannot become a subject without a radical change of sense ; that the form ' A is (an) A ' never genuinely occurs. Aquinas remarked long ago that in sentences that seem to be of this form, the subject and predicate are really different in sense (*diversa ratione*) ; the first ' A ' stands for an object (*suppositum*), the second for a property (*forma*) found in the object.[1] Thus, in

[1] I^a Q. 13 art. 12.

'the King of England is the King of England', the subject stands for the man George VI, and the predicate for the property of being the King of England.

Thus we come back once more to our fundamental distinction. We must reject the traditional logic of terms, in which every term can be either subject or predicate; we must also reject the class-theory of predication. Somebody who takes the class-theory seriously, as Quine does in *Mathematical Logic*, is bound to hold that in the matrix 'x is a y' both variables are replaceable by proper names; that in 'Paris is a city', 'city' is a proper name just as 'Paris' is, only a name of a 'less tangible' object. In that case, 'city is a city' would make sense; but we can see it is nonsense, and Russell's paradox proves that it is.

Quine tries to avoid Russell's paradox by denying that 'x is not an x' expresses an admissible (necessary and sufficient) condition for class-membership. But on his view 'class-membership' and 'possession of a property' are two expressions for the same thing; so in effect he is denying that 'x is not an x' stands for any property. Now he holds that the following matrix does give an admissible membership-condition:

For some y, x is a y; and x is not an x.

This, then, must stand for a property. But how can it do so, if 'x is not an x' does not? It is as though I said that 'x is a hat and x is runcible' stands for a property, but 'x is runcible' stands for no property. Again, let us express the property that this complete formula stands for by the predicate 'W', or the matrix 'x is a W'. Then we have:

For any x, x is a W if and only if: both, for some y, x is a y; and x is not an x.

From this Quine correctly infers: 'For no y is W a y'. He states this result in the form 'W is not a member of any class' or 'W is not an element', and regards it as involving no contradiction.[1] But on his showing we could equally well say 'W has no properties'; and an object without properties is assuredly an *Unding*.

The view that predicates are names of objects called 'classes' is one that we may now regard as finally refuted. The symbolism '$x \epsilon y$' suggests a mistaken view of the copula, and is best abandoned; it would be better to write '$y(x)$' and lay it down that a predicate-letter like 'y' must always be followed by a pair of brackets, so as to leave open an empty space for a variable or a

[1] *Op. cit.* pp. 119, 128-9, 131.

name. In that case, we should get instead of '$x \epsilon x$' the manifestly ill-formed expression '$x(x(\ ))$'.

We may now return to our unsolved problem whether a common noun like 'man' is used materially or formally, as a name or as a predicate, in a sentence like 'Peter struck a man'. We saw that in the former case 'man' must be taken as a name of any man you like; but it is hard to see how 'Peter struck a man' is an assertion about any man you like. At this point I think we may be helped by what Aquinas says. As regards the truth-conditions of an affirmative predication (*compositio*), he rejects the view that subject and predicate stand for two different objects, which we assert to be somehow combined; on the contrary, the truth of the predication requires a certain identity of reference. Thus. if the predicate 'white' is to be truly attached to the subject 'man' or 'Socrates', there must be an identity of reference holding between 'man', or 'Socrates', and 'thing that has whiteness' ('*quod est habens albedinem*'); the two names must be *idem subiecto*. Notice that what is here in question is the reference of a *descriptive name*, not of a predicate; Aquinas does not hold, indeed he expressly denies, that predicates like 'white' stand for objects (*supponunt*).[1] His theory is that if the predicate 'white' is truly attached to a subject, then the corresponding descriptive name 'thing that has whiteness' must somehow agree in reference with the subject.

It is easy to see how this works when a proper name is the subject and the predicate is what I have called a singular predicate; the name 'Socrates' stands for one definite object, and 'Socrates is white' is true if and only if 'thing that is white' is also a name of this object. But suppose we try to combine a singular predicate with a name like 'man', whose sense does not require unique reference? In that case, the condition that there must be identity of reference between 'thing that is white' and 'man' becomes void for uncertainty, as lawyers say; 'man is white' has no definite truth-condition, and therefore no complete sense and no truth-value. To complete the sense, we must add a word specifying the *kind* of identity of reference; expressing, as Aquinas would say, the *ordo* of predicate to subject.[2] We get such words in the sentences '*some*' (or '*a*') 'man is white'; '*every* man is white'; '*only* (a) man is white'. It was an achievement on Aquinas's part to see that 'only' is an expression of the same sort as 'every'.

Aquinas's terminology differs somewhat from that which we

[1] Ia Q. 85 art. 5 ad 3 um; Q. 39 art. 5 ad 5 um.
[2] Ia Q. 31 art. 3.

have been using. Aquinas would say that the predicate 'white' cannot be attached to the subject 'man' unless we use also a word like 'some' or 'every' or 'only' that expresses an *ordo* of predicate to subject. In our terminology this would rather be expressed as follows: 'white', being a singular predicate, cannot be attached at all to a subject like 'man'; what is attached to 'man' in 'some man is white' is the complex predicate 'some — is white' formed from the singular predicate 'white'. But the difference is merely verbal; the important point, which Aquinas quite understood, is that 'some man', 'every man', 'only (a) man' are not, as grammar would suggest, complex names to which the predicate 'white' can be attached; 'some', 'every', 'only' are not part of the subject, but join the adjective 'white' to the subject. We saw that if we take 'some man' as a name, hopeless difficulties arise over the question what these words stand for; and it is still more obviously absurd to suppose that 'only (a) man' stands for one or more men.

We may follow Johnson in calling 'some, 'every', 'only', by the name '*applicative* (operator)'; we shall see presently that an applicative operator *is* an operator, in our sense. Johnson, however, regards applicatives as conjoined in sense with the nouns that follow them; as I have just said, this is wrong.[1]

We must now consider which *ordo* of predicate to subject is expressed by each applicative operator; that is, we must see which kind of identity of reference constitutes the truth-condition for a sentence containing a given applicative. It must be premised that if the subject is a common noun, or a noun-phrase, that names nothing, the sentence has no reference to anything, and no truth-value; when I speak simply of 'the' truth-condition for a sentence, I mean that if the subject does refer to something, then the sentence is true if this condition is fulfilled and false if it is not.

In the first place, a partial identity of reference may be all that is required; thus, the truth-condition for '*some* man is white' is that 'man' and 'thing that is white' shall both be names of some object. We may call 'some' or 'a, an' the *indefinite* applicative.

'Every' or 'any' expresses a kind of total identity of reference; the truth-condition for '*every* man is white' is that 'man' shall not name anything that is not also named by 'thing that is white'. We may call 'every' or 'any' the *general* applicative.

[1] *Logic*, Part I, pp. 97-8.

'Only' expresses the converse kind of total identity of reference; the truth-condition for '*only* (a) man is white' is that 'thing that is white' shall not name anything that is not also named by 'man'. We may call 'only' the *exclusive* applicative; Aquinas correctly appreciated the part it plays.

We thus get three affirmative and three negative forms, as follows:

1. Some S is P. 3. Every S is P. 5. Only S is P.
2. No S is P. 4. Not every S is P. 6. Not only S is P.

1 and 2, 3 and 4, 5 and 6, are by definition contradictory pairs. This sixfold scheme is given by Keynes in his *Formal Logic*, but only in connexion with the false theory of the 'quantification' of the predicate. If the forms 5 and 6 are introduced in the strange disguises 'some S is all P' and 'no S is some P', logicians may well be prejudiced against them; but they are none the worse for that, in themselves.

If we appeal to the truth-conditions, we see that the traditional 'square of opposition', formed by 1, 2, 3, and 4, really does exhibit the logical relations traditionally recognised. 1 follows from 3, and 4 from 2, but not conversely; 2 and 3 cannot both be true; 1 and 4 cannot both be false. Keynes's widely accepted criticism of the traditional rules on the matter of 'existential import' is vitiated by the standing confusion of the logic of terms; 'some S is P', where 'S' must be a name, is not distinguished from 'something is both S and P', where 'S' is a predicate. If 'S' is a pseudo-name like 'dragon' or 'round square', and names nothing, none of the above forms has a truth-value, and so the 'square of opposition' becomes not invalid but inapplicable.

The question arises whether we are to construe 'only S is P' as implying 'something is P'. It seems to me best not to do so; but rather, to decide that if the descriptive name 'thing that is P' names nothing at all, then we may say *a fortiori* that it names nothing that is not also named by 'S'; and therefore, to hold that if 'nothing is P' is true, the truth-condition for 'only S is P' is fulfilled. The failure of 'thing that is P' to name anything does not deprive 'only S is P' of truth-value; for what we use in this sentence is not the name but the corresponding predicate, 'P'; and a predicate can legitimately be used even when the corresponding descriptive name names nothing, for otherwise 'nothing is P' could never be true. Logically, it is best to interpret 'only S is P' as merely excluding from *consortium* in the predicate 'P' any other object than is named by 'S', and not as implying the truth of 'something is P'.

This interpretation is respectably ancient, as we see in the epigram of Phocylides (*c.* 550 B.C.): 'Lerians are bad; not some bad, and some not; all bad, except Procles; and Procles is a Lerian'. In logical form: we are not to pass from 'only Procles is a Lerian without being bad' to 'something is a Lerian without being bad'.

This example shows that in 'only S is P' 'S' may be a proper name; the truth-condition for 'only S is P' neither requires nor excludes this. Thus the predicate 'only — is P' is a first-order predicate, since it can be attached to the name of an object; but it is not a singular predicate, for the sense of this name *need* not require unique reference. We have thus confirmed the possibility of non-singular first-order predicates, and the legitimacy of taking 'man' as a name in 'only a man is white'. Since an applicative turns a first-order (singular) predicate into a new first-order predicate, it is, in our sense, an operator.

If we appeal to the truth-conditions, we find that 'Judas was a thief' and 'every Judas was a thief' and 'some Judas was a thief' are synonymous assertions. The second and third of these are not natural English (unless 'Judas' be taken as a common noun meaning 'traitor'); but English grammar is here no safe guide. As we saw, 'every' and 'some' logically belong with the predicate, not with the noun that follows them; and anyhow, if we substituted for 'Judas' the definite description 'one who was, and who alone was, both a traitor and an Apostle', all three sentences would be grammatically unexceptionable (except that 'every one' and 'some one' would here be more naturally written as single words). Thus the sense of the predicates 'every — was a thief' and 'some — was a thief' does not prevent their being attached to a name whose sense requires unique reference; they are first-order predicates. It is natural that we should not prefix 'some' or 'every' to 'Judas was a thief', for they add nothing to the sense; but the addition is logically permissible. Traditional logic was right in holding that 'Judas was a thief' may be put in the form 'every Judas was a thief'; the modern criticism that this procedure 'confuses the copulas of class-membership and class-inclusion' rests on a view of the copula that we have rejected. But traditional logic does not recognise at all adequately the peculiarities of proper names and singular predicates; its being right here is just a lucky accident.

As a result of our analysis of ordinary 'categorical' sentences, we may conclude that such nouns as 'cat' and 'man' may be genuine logical subjects, and that when so used they are names of individuals, not of classes. For instance, 'a man is white'

is true if something is named 'man' and is also named 'white object'; to see if this truth-condition is fulfilled, we look at individuals named by 'man'.

My long discussions of everyday language may appear tedious to some readers. But false analyses of ordinary language lead to incorrect symbolism, and ultimately to contradictions like Russell's Paradox. Because the traditional logic gives a bad, muddled analysis of ordinary language, modern logicians often seem to think that ordinary language itself is merely chaotic, and undeserving of careful examination; that one should rather proceed at once with the construction of a new, exact language. And so we get elaborate constructions based on a complete misunderstanding; Quine's *Mathematical Logic* for example rests on the assumption that 'Jemima is a cat' asserts a relation between two objects whose proper names are 'Jemima' and 'cat', the latter name referring to a 'less tangible' object than the former. When such logic leads to contradictions, it is thought that some minor technical change will put everything right. But if a man does not discern the nature of ordinary predications, then, however great his technical skill may be, his symbolic construction is a crazy, jerry-built affair; it rests upon sand. *Pessima in principiis corruptio.*

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III.—FREGE'S *SINN UND BEDEUTUNG*

By Paul D. Wienpahl

Reference to Frege's *Sinn und Bedeutung* is frequent in the literature on meaning. Writers apparently take for granted that Frege: (*a*) proved the necessity for distinguishing between the sense of a word and its referent, and (*b*) clarified the distinction by specifying a meaning for 'sense' required by the proof.[1] Examination of his famous argument is therefore in order.

This is particularly the case since the argument proves only that a distinction between *something* to be called sense and referent is necessary. The argument does not specify a meaning for 'sense', although it does, as stated by Frege, make possible an inference to a meaning of 'sense' which is unsatisfactory because it requires that the sense of a word be a subsistent entity. Careful examination of the argument reveals an oversight which requires this unsatisfactory meaning of 'sense'. Correction of this oversight makes possible a conception of sense which is satisfactory in the respects that it fits the data in Frege's discussion and does not make the sense of a word a subsistent entity.

This examination is divided into two parts: (A) a statement and analysis of Frege's argument, and (B) specification and justification of a meaning of 'sense' which fits the data of Frege's discussion and does not make sense a subsistent entity. The specification probably applies generally, however, because of the generality of Frege's demonstration and because of advantages this specification has which will be listed.

(A)

Frege's argument for the need for distinguishing sense from referent runs as follows. Brackets are used to enclose statements which are mine and not Frege's.

[1] In this discussion I use the terms 'sign', 'sense', 'referent', 'mode of designation', and 'mode of presentation' as they occur in the English translation of Frege's paper made by Max Black in the *Philosophical Review*, Vol. LVII, No. 3, May, 1948. The particular argument to which I refer occurs on pp. 209-210 in the English translation and pp. 25-27 in the original which was published in *Zeitschrift für Philosophie und Philosophische Kritik*, Vol. 100, pp. 25-50, 1892. Quotations are followed by page references in parentheses. These references are to both editions of the article and are given in the order English-German.

'$a = b$' differs in cognitive value from '$a = a$' because '$a = a$' is analytic and because '$a = b$' is synthetic, as we see from such discoveries as that the rising sun is the same every morning. If the relation of identity asserted in '$a = b$' holds between that which 'a' and 'b' name, '$a = b$' does not differ cognitively from '$a = a$', provided that '$a = b$' is true. [For, if 'a' and 'b' as signs (forgetting their physical properties) have only a single property, that of referring to an object, then, when that object is the same for both 'a' and 'b', '$a = a$' and '$a = b$' would say the same or be cognitively equal.] Furthermore, the relation in this case would be one a thing holds to itself. But in '$a = b$' it seems we want to assert the relation between 'a' and 'b'; *i.e.*, to say that 'a' and 'b' refer to the same thing. Therefore, the relation of identity is asserted in '$a = b$' to hold between the signs and not that of which they are signs.

However, if the relation (identity) holds between 'a' and 'b' in so far as they are signs, that is, refer to something, then '$a = b$' would "express no proper knowledge"; because the connexion of a sign with that of which it is a sign is arbitrary. (P. 209, p. 26.) Any arbitrarily producible event or object can be a sign. Thus '$a = b$' would no longer refer to the subject matter but only its mode of designation; *i.e.*, express no proper knowledge. "If the sign 'a' is distinguished from the sign 'b' only as object (here, by means of its shape), not as sign (*i.e.*, not by the manner in which it designates something), the cognitive value of '$a = a$' becomes essentially equal to that of '$a = b$', provided that '$a = b$' is true". (P. 209, p. 26.)

Hence, '$a = b$' can differ cognitively from '$a = a$' only if there is some other difference between 'a' and 'b' as signs [than mode of designation, or having a referent]. This difference lies in the mode of presentation. The latter is exemplified by the difference between 'Point of intersection of a and b' and 'Point of intersection of b and c', where a, b, and c are lines connecting the vertices of a triangle with the midpoints of the opposite sides. Therefore, signs have a *sense* (wherein the mode of presentation is contained) as well as a *referent*.

Preliminary to examining the meaning of 'sense' we observe the following about Frege's argument. We must assume that the argument as stated is incomplete, for it must be inferred that Frege changed his mind about the terms between which the relation of identity is asserted to hold in '$a = b$'. The view that identity does *not* hold between that to which 'a' and 'b' refer must be rejected. We infer that Frege concludes that identity holds between that to which 'a' and 'b' refer when we say that

$a = b$. Otherwise, since he has *explicitly* shown reason why the relation of identity cannot hold between that to which 'a' and 'b' refer, nor the modes of designation of 'a' and 'b', it would have to hold between their modes of presentation. But since the modes of presentation of 'a' and 'b' are by hypothesis *different*, this would mean 'identity' was given a use contradictory with that which it has in 'the rising sun is the same (identical) every morning'. In this case Frege's argument is fallacious. Or, if we allowed the modes of presentation of 'a' and 'b' to be the same, despite the hypothesis, then '$a = b$' would not differ cognitively from '$a = a$'.

Furthermore, it will be noticed that the argument is difficult to follow as Frege gives it because he did not employ the useful notion of metalanguage. It seemed to him that '$a = b$' and ''a' and 'b' refer to the same object' were equivalent statements, and that, therefore, '$a = b$' says something about 'a' and 'b' instead of a and b. Were this the case, however (Frege perceived correctly), '$a = b$' would express no proper knowledge. Whenever we want '$a = b$' to express proper knowledge, it cannot be equivalent to ''a' and 'b' refer to the same object'. Hence, as we can say to-day, '$a = b$' is not a statement in the metalanguage and '=' not a sign in the metalanguage.

Finally, the term 'mode of designation' as Frege uses it is superfluous for it can always be replaced by the term 'referent' without changing the meaning of the sentence in which it occurs.

In the light of these observations it is useful to restate Frege's argument briefly as follows. Signs must have a sense as well as a referent otherwise we cannot account for the cognitive difference between '$a = a$' and '$a = b$'. For between what terms is the relation of identity asserted to hold in '$a = b$'? If between the objects to which 'a' and 'b' refer, then '$a = b$' has the same cognitive value as '$a = a$' provided '$a = b$' is true. If between the signs 'a' and 'b' then '$a = b$' is a statement in the metalanguage (or, as Frege says, would be about the signs and, therefore, " express no proper knowledge "). If, however, 'a' and 'b' have something besides referents, even if their referents are the same (as they are asserted to be in '$a = b$'), '$a = b$' can have a different cognitive value from '$a = a$'. This difference is that of sense illustrated as follows: the difference between 'Point of intersection of a and b' and 'Point of intersection of b and c', where a, b, and c are lines connecting the vertices of a triangle with the midpoints of the opposite sides.

This argument clearly proves that we must talk of something besides the referent of a sign. Frege calls this something ' sense '. The proof follows from the requirements which the use of ' identity ' forces upon us. As the argument and Frege's discussion stand, however, what is the sense of a sign ?

Consider one of the examples Frege employs. ' Point of intersection of *a* and b ' and ' Point of intersection of *b* and *c* ' have the same referent and different senses. The only *observable* differences between these signs are : (i) the physical differences of shape, etc., and (ii) the differences of referents of their component parts, specifically of ' *a* ', ' *b* ', and ' *c* '. Since not all signs have component parts which are themselves signs, we may discount the importance of (ii). However, Frege also discounts the importance of (i), or at least he implies that difference of sense has nothing to do with differences of shape and other physical properties of signs. For he says : " If the sign ' *a* ' is distinguished from the sign ' *b* ' only as object (here, by means of its shape), not as sign (*i.e.*, not by the manner in which it designates something), the cognitive value of ' $a = a$ ' becomes essentially equal to that of ' $a = b$ ', provided that ' $a = b$ ' is true ". (P. 209, p. 26.)

Elsewhere in the article Frege distinguishes sense from referent and other elements in sign usage, but these distinctions do not tell us what sense is. For example, we are told that a sign may have a sense without a referent, as in ' the least rapidly convergent series '. (P. 211, p. 28.) We are also told that the referent and sense of a sign are to be distinguished from the associated conception. " If the referent of a sign is an object perceivable by the senses, my conception of it is an internal image, arising from memories of sense impressions which I have had and activities, both internal and external, which I have performed. . . . The conception is subjective. . . . This constitutes an essential difference between the conception and the sign's sense, which may be the common property of many and therefore is not a part or mode of the individual mind." (P. 212, p. 29.) " The referent is the object itself which we designate by its (the sign's) means ; the conception, which we thereby have, is wholly subjective ; in between lies the sense, which is indeed no longer subjective like the conception, but is yet not the object itself." (P. 213, p. 30.)

Frege's discussion leaves us with the distinction between sense and referent, and with a clear meaning for the latter but none for the former. Since the sense of a sign is distinguishable from the objective elements (referent) and the subjective elements

(conception, in Frege's usage) connected with its employment, *and* since we do not know clearly what sense is, it has been regarded as a subsistent entity. This is unsatisfactory on two counts: it multiplies entities, and it prevents us from verifying *that* there is sense, since verification depends on controlled observation. That is to say, this makes the sense of a sense an "entity" like whiteness or chairness, "things" which can be thought but not observed. Proof that such "things" exist cannot be given in the ordinary way we prove that things exist, namely by observing them. Usually when someone maintains there are fairies and we cannot observe them, we say that he is mad or that this is just a manner of speaking. Sense which is neither subjective nor the object is similar to fairies which no one can see and yet about which everyone can talk when they are willing to tell tales or speak metaphorically.

(B)

Frege correctly observes that there is a cognitive difference between '$a = a$' and '$a = b$'. He demonstrates that the properties of identity require a distinction of sense and referent to account for this difference. Under the conditions set by this demonstration and accepting Frege's concept of the referent, the sense of a sign (and, therefore, the cognitive difference between, say, '$a = a$' and '$a = b$') can be accounted for as follows. I wish to stress that the following specification of the meaning of 'sense' is given in connexion with Frege's reasons for speaking of sense which are the most explicit grounds for distinguishing something besides the referent of a sign. There has been a tendency to talk of the sense of a sign before investigating the reasons necessitating the distinction of sense at all.

There is a most important difference between '$a = a$' and '$a = b$' which Frege discounts but which can, nonetheless, explain the difference in cognitive value between '$a = a$' and '$a = b$'. This is the difference between 'a' and 'b' *as objects* whether they function as signs or not, but particularly in the case that they do. This difference explains why '$a = b$' can "express . . . proper knowledge" and '$a = a$' is analytic. '$a = b$' expresses proper knowledge because you can use 'a' and 'b' without knowing that their referents are the same (*i.e.*, identical; or, that $a = b$). That is, you must look at something besides 'a' and 'b' to know that $a = b$. On the other hand you do not have to look at anything except 'a' and 'a' to know that $a = a$. '$a = a$' is analytic precisely because

examination of the signs as objects and *not as signs* reveal its truth. This is another way of saying that pure logic is a game; or, that the "signs" in pure logic have no referents, are not properly speaking signs (to use Frege's term). Sometimes we say that they are uninterpreted signs. Put otherwise and more precisely it can be said that the truth of '$a = a$' can be established simply on the basis of the semantical rules of our language without reference to empirical (non-linguistic) facts; whereas we have to employ something besides and in addition to semantical rules to prove that '$a = b$' is true, namely a and b. Therefore, one difference in cognitive value between '$a = a$' and '$a = b$' is due to the differences between the physical properties of 'a' and 'b'. As far as Frege's proof that signs must have a sense as well as a referent is concerned this difference is sufficient to account for the difference in cognitive value between '$a = a$' and '$a = b$'. We conclude that the *sense of a sign is the combination of its physical properties* in so far as it is an object which functions as a sign.

Regarding the sense of a sign as the combination of its physical properties is compatible with all subsequent statements Frege makes about sense in the article "Sinn und Bedeutung". For example: 'morning star' and 'evening star' have the same referent but different senses. 'The least rapidly convergent series' has a sense but no referent. It will be noted that in the case of complex signs (*i.e.*, signs composed of signs) the cognitive value of a sign depends not only on its sense but also on the referents of its component parts. Where there is no referent and never has been a referent in the case of a simple sign, it is *not* a sign and we would not speak of sense in such cases. Furthermore, as Frege observes, the sense of a sign is objective. It is objective on our interpretation in the respect that it can be common to many minds, in the same way that any physical object can be common to many observers.

It may be supposed that Frege and others have discounted the importance of the physical differences between signs in the problem of sense because they have been too impressed with the arbitrary character of signs. Although it is true that any arbitrarily producible event or object can function as a sign, it is false that once it does its relation to its referent is arbitrary. The relation is then necessary in the respect that without it the event or object is not a sign (or, in particular *the* sign it is). This is one reason why to say that $a = b$ requires that you be talking about that to which 'a' and 'b' refer, that is, talking about a and b.

As long as we suppose that any other object can be arbitrarily

substituted for ' *a* ' *and* that this is all there is to it, the physical properties of ' *a* ' considered simply as an object are indeed unimportant. The cognitive value of any statement in which ' *a* ' occurs does not seem to depend at all on these properties of ' *a* '. But this overlooks the fact that because any object will serve as a sign we *cannot* infer that *no object* to serve as a sign is required, which is what paying no attention to the physical properties of signs amounts to. Sign behaviour can occur without any *given* sign but we cannot infer from this that the physical properties of any given sign once it is used are unessential in accounting for the ways in which signs function, such as referring, having sense, etc.

Another reason why the importance of the difference we are stressing has been overlooked and, hence, another possible objection to the view advanced here is the influence of the phrase ' thinking of '. Thus, it may be argued, to say one of the cognitive differences between ' *a* ' and ' *b* ' (or difference of sense) is simply their differences as physical objects is to make these objects or our utterances or writings of them our cognitions or thoughts. But when I am thinking, say, that $a = b$, I am *thinking of* something. The signs ' *a* ', etc., are the means by which I think *of* this something. (G. E. Moore employs this argument in " The Conception of Reality ". See his *Philosophical Studies*, 1922, p. 215.)

Nothing can gainsay this argument if we persist in employing the distorted way it uses words or in employing the inference it makes from linguistic use. But if we reflect that there is no difference in ordinary usage between ' I am thinking that $a = b$ ', ' I am thinking of $a = b$ ', *and* ' I am thinking $a = b$ ', we see that the superflous (in this case) preposition ' of ' has made us look for something which we have no *other* reason to suspect is there ; namely, a thought, a sense, a signification, etc. It is a little like hearing that Wienpahl * has left town under a cloud and looking for the cloud. Although we use ' think of ' like ' have of ' (in ' have of this ') and ' box of ' (in ' box of this '), there is no reason to suppose in the case of ' think of ' that the ' of ' must have an object. To do this is to be misled by a grammatical form *which can be eliminated* without using a forced expression, although that form cannot be eliminated in the other cases without distorting ordinary usage.

On the other hand, in one respect the construction ' think of '

* This example is from " The Secret Life of James Thurber," James Thurber, in *The Thurber Carnival*, 4th Ed., Harper & Bros., New York, 1945.

need not lead to difficulties; say, in 'I am thinking of *a*'. The object of the preposition 'of' is '*a*', that is, the sign. It is only when we overlook the essential characteristic of signs (that they have referents and can function as signs when the referents are not present in the situation in which they are used), that it seems absurd to say I am thinking of a sign. In one way of looking at it I *am*. And to say that I am is trivial only if we regard the sign as being *merely* a physical object and forget what kind of a physical object it is; namely, a sign. 'I am thinking of' may in other words be regarded as a part of a pseudo-object statement. As such the phrase is actually in the metalanguage. Due, however, to the common confusion of words and things its metalingual character has been overlooked, leading to a search for something besides the sign and referent to which it refers when actually it refers to the sign.

It may be further objected that we can have: (*a*) *different* senses for the *same* sign, or (*b*) the *same* sense for *different* signs. To this the reply is as follows. In the first place, if the sense of a sign is the combination of its physical properties as an object, neither of these possibilities is cogent. I do not intend here, by the way, to impugn the familiar assertion that words in different languages can mean the same thing. In one sense of 'mean' they can, namely 'refer to'. In another sense of 'mean' they cannot, namely when 'mean' is used as equivalent to 'sense' (Frege's term with whatever explication we give it).

In the second place, consider (*a*) (different senses for the same sign). Under the conditions which Frege gives for requiring that a distinction be made between sense and referent at all the possibility suggested cannot be stated significantly. Suppose we argue that 'tear' is a word having two different senses ('tear (drop)' and 'tear (rent)') and yet in either case we write 'tear'. Note, first, that the most obvious difference between 'tear' as 'tear (drop)' and 'tear' as 'tear (rent)' is that they have different referents. However, it may be urged, 'tear' also has different senses. It has but *only in a most peculiar way*. Take Frege's argument which runs: if the relation of identity asserted in '$a = b$' holds between that which 'a' and 'b' name, '$a = b$' does not differ cognitively from '$a = a$', provided that '$a = b$' is true (for, if 'a' and 'b' as signs (forgetting their physical properties) have only a single property, that of referring to an object, then, when that object is the same for both 'a' and 'b', '$a = b$' and '$a = a$' would say the same or be cognitively equal). '*tear* = *tear*' corresponds to '$a = a$', but you cannot construct the equivalent of '$a = b$' without adding more letters

to each ' tear '. In other words, you cannot state the conditions for arguing that a sign must have a sense as well as a referent at all. For the case for ' tear ' equivalent to ' $a = b$ ' is ' tear (drop) = tear (rent) '. Here there is a difference of sense, but there is also a physical difference between the signs.

Note also that Frege's argument requires that ' $a = a$ ' is cognitively equal to ' $a = b$ ' *provided* that ' $a = b$ ' is true. In cases such as ' tear ', ' tear (drop) = tear (rent) ' will always be *false*. That is, where it is urged that the same sign can have different senses we find that the signs in question have different *referents* (of necessity, otherwise you do not have different cases). This is why ' $a = b$ ' is false in such cases, thus violating another condition of Frege's argument.

Although this reasoning goes contrary to what we *expect*, it appears nonetheless correct (and should serve to set us straight in some matters). Nevertheless it may be argued that ' tear ' and ' tear ' do in some situations have different senses without adding more letters to them. To this may only be replied that you cannot say or write this without *saying to yourself* " 'tear (rent) ' and ' tear (drop) ' ". ' Tear ' for ' tear (rent) ' or ' tear (drop) ' can only be used without these additions when the context of usage makes it clear whether ' tear (rent) ' or ' tear (drop) ' is being used. And a different context of usage is equivalent to adding more letters. It seems, therefore, that strictly speaking the same word (considered as a physical object) *cannot* have different senses. We say that it can, but do so uncritically, loosely. When the question of sense arises this loose manner of speaking is dangerous. Therefore, the objection that there can be different senses for the same sign does not hold.

Consider (*b*), different words with the same sense ; say, ' chat ' and ' cat '. In this case you cannot construct the equivalent of ' $a = a$ ' in that portion of Frege's argument which runs : if the relation of identity asserted in ' $a = b$ ' holds between that which ' a ' and ' b ' name, ' $a = b$ ' does not differ cognitively from ' $a = a$ ', provided that ' $a = b$ ' is true. In the second place, where the supposed equivalent of ' $a = b$ ' can be constructed, ' chat = cat ', the statement is in the metalanguage and, therefore does not correspond to ' $a = b$ ' in Frege's argument. Therefore, the objection that we can have different words with the same sense does not hold under the conditions required for talking about sense. Considerations similar to those for signs which are written the same apply to those which sound the same, *e.g.*, ' rain ' and ' reign '.

Finally I wish to call attention to some sentences in this paper

which, by the way in which terms are used in them illuminate the theory of ' sense ' explicated here. Consider first: " This makes the sense of a sign an " entity " like whiteness or chairness, " things " which can be thought but not observed ". (P. 5.) This sentence is illuminating because it suggests that the reason why we can think whiteness, chairness, sense, etc., is due to ' whiteness ', ' chairness ', and ' sense '. Nobody ever suggests that we can *observe* them because in one way people are thoroughly aware of the difference between ' dog ' and dog, the word and the thing. But in another way it has seemed plausible to claim we can think of whiteness because it is also easy to forget the distinction between word and thing, or idea and object. That it is easy is evidenced by the conviction carried by the ontological argument for God's existence. ' Whiteness ' has " sense " because it is a word that can " run through our minds ", and because of its similarity to ' white ' which does have a referent and hence also sense (since it is a sign, which ' whiteness ' is not when it is used to " name " the universal). We would not claim that ' gobbledegoop ', although it can " run through our minds ", has sense because it does not resemble some legitimate sign which, being a sign, does have sense; and because ' gobbledegoop ' is not a sign. Sense is a property of physical objects which are signs, not any physical object whatsoever. And, of course, we can talk about sense even when we treat it as a subsistent entity because we can talk ' sense ', that is, utter the word ' sense '.

In a way we are thinking when we do this just as in a way a child playing with *toy* guns is fighting a battle. In another way he is not because the gun is a toy gun not, as we say, a real gun. In this way, too, to talk about sense as a subsistent entity is not really thinking because in this case ' sense ' is like the toy gun: it is not a real sign, that is, it is not a sign.

Consider next: " This difference (between ' $a = a$ ' and ' $a = b$ ') lies in the mode of presentation; *e.g.*, between ' morning star ' and ' evening star '." When we say the modes of presentation (senses) of ' morning star ' and ' evening star ' are different is this not like saying " the ways ' evening star ' and ' morning star ' present their object (the star) are different " ? And is this not like saying " ' morning star ' and ' evening star ' are different "? But what are ' morning star ' and ' evening star ' if they are not physical objects serving as signs ? Saying they are different is like saying that Joe's bed is different from Joe's coat. The difference in both cases is the same in that it is a difference of physical properties. We have seen that the term ' mode of designation ' is superfluous, that the only term we need is

' referent '. Similarly, either ' sense ' or ' mode of presentation ' is superfluous. ' Sense ' may have been preferred because it is a familiar word, but ' mode of presentation ' is more illuminating when we are concerned with the problem of the meaning of ' sense ' or what sense is. ' Mode of presentation ' suggests simply that the referent of ' sense ' or ' mode of presentation ' is the sign itself as a physical object. The way of presenting the evening star is 'evening star'. 'The evening star is the same as the morning star ' differs cognitively from ' the evening star is the same as the evening star ' because ' evening star ' differs from ' morning star '.

Consider finally : " I do not intend here, by the way, to impugn the familiar assertion that words in different languages can mean the same thing. In one sense of ' mean ' they can, namely ' refer to '. In another sense of ' ' mean ' they cannot, namely when ' mean ' is used as equivalent to ' sense ' (Frege's term) ", (p. 9). These sentences are illuminating because we might have written : " according to one meaning of ' mean ', they can namely ' refer to ' " ; or, " in one way that ' mean ' is used, namely as ' refer to ' " instead of " In one sense of ' mean ' . . . ". The term ' sense ' in other words is employed equivocally in English in such fashion as to make it seem that the same word can have more than one sense. Whenever this claim is made we see that what is claimed is that the same word can have two different *referents*. The sentences quoted are also illuminating because ' mean ' is employed with a similar equivocation.

Suppose that in the sentence ' In one sense of ' mean ' they can, namely ' refer to ' ' the ' sense ' used is Frege's ; that is, the name for that property of signs which differs from their property of referring to something or naming. This supposition is contrary to the fact of the usage of ' sense ' which actually occurs in ' In one sense of ' mean ' they can . . . ' as we see from the preceding remarks, but let us make the assumption anyhow. The sense (Frege's term) of a word as distinguished from its referent is then intuitively seen to be its physical shape, etc. For when we want to speak of a different sense of ' mean ' we have to use a different word. ' Mean ' apparently has only one sense. If we want to employ a different sense we must use a different word.

Off hand, it looks as though the phrase ' a different sense of ' mean ' ' contradicts the observation we are making. This is because the phrase is legitimate when the ' sense ' occurring in it is equivalent to ' referent '. When the ' sense ' has the usage Frege introduced, the phrase is illegitimate in the same way that the sentence ' God exists ' is illegitimate according to Russell's theory of descriptions. Thus we can speak of different senses

(Frege's term) but not different senses *of a word*. To ask for a different sense is to ask for a different mode of presentation, a different way of referring to the same objects; that is, for different words. The phrase 'a different sense of 'mean'' is seen to be legitimate in one way (when we are asking for a different referent) and illegitimate in another (when we are asking for a different sense, Frege's term). Or the phrase may be regarded as a loose way of simply asking for a different sense; a request which amounts to: 'can't you put it differently' or 'can't you say it differently' which are requests for different terminology.

In conclusion, by supposing that the cognitive difference between '$a = a$' and '$a = b$' depends on the difference between 'a' and 'b' as objects in so far as they function as signs, there are the following advantages. We do not have to believe in a subsistent entity, the sense of the word. We have to speak only of signs, their referents and our responses to and uses of the signs. We do not overlook the characteristic feature of a sign, that it has or had a referent. We clear up the puzzle caused by phrases like 'think of'. Finally, by regarding the sense of a word in this way, 'sense' is interpreted in a fashion which relates its interpretation to the theory that language and thinking are inextricably connected. It used to be supposed that man developed language to communicate thoughts he already had. The analysis of language given by men such as Locke, Wundt, and Sapir was based on this false theory of language, that words are expressions of thoughts or ideas. For various reasons it has been necessary to develop a new theory of language according to which thought is not possible without speech. The interpretation of 'sense' given here not only accords with Frege's reasons for speaking of sense but agrees with the current theory of language. For, according to this interpretation the sense of a word is the "thought" we have when using the word, but the word is an integral and major portion of the "thought".

As far as Frege's discussion is concerned the explication or 'sense' given here suffices. However, further explication is clearly necessary for adequate description of sense. For example, in speaking of the physical properties of signs, say the spoken word 'dog', there is the problem of where the line is to be drawn between the sound 'dog' and the physiological, anatomical, etc., processes involved in producing and hearing the sound before we can say that this or that is the sign. However, if this account is correct we do not have to worry about the sense of a sign being something different from words or the acts of producing them.

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IV.—THE THEORY OF SOVEREIGNTY RESTATED

By W. J. Rees

There is a tendency among present-day political theorists to work without the aid of the concept of sovereignty. This is due partly to the logical difficulties inherent in the concept, and partly to the fact that certain modern political developments, such as the growth of democracy, federalism and public law, have made the concept a difficult one to apply in present conditions. The purpose of this article will be to re-examine the traditional use of the concept, and to enquire whether it still cannot be used in such a way as to avoid the objections now usually raised against it.

I

The strength of the logical objection to the traditional theory can be seen if we merely examine the following traditional questions: (1) Is it necessary that there should be a sovereign, or an ultimate source of authority or power, in every state? (2) Is it necessary that the authority or power of the sovereign should be indivisible? (3) Is it necessary that the authority or power of the sovereign should be unlimited? and (4) Where is the sovereign located? It is notorious that no unambiguous answer is possible to these questions. What then is the point of asking them, and what is the point of a concept which merely enables us to ask pointless questions? Nor is the criticism obviously exaggerated. The evidence of some three and a half centuries of political theory is largely on the side of the critics.

There are, however, two different reasons why it may not be possible to give a straight answer to a seemingly straight question. In the first place, the question may not be a genuine question. This may be either because it involves a logical contradiction, *e.g.*, What is there outside the universe? or because we do not know what information would be relevant to determining the answer to the question, *e.g.*, Is everything twice as big to-day as it was yesterday? But in the second place, the question may be more than one question. This would be the case when the terms in which the question is stated are capable of having more than one meaning, *e.g.*, Is justice the interest of the stronger? where 'justice' may mean 'legal justice' or

'ideal justice', and where the answer may be different according to the sense in which the word is used.

The traditional questions about sovereignty, it seems to me, are questions of the latter and not of the former kind. They cannot be satisfactorily answered, not because they are not genuine questions, but because each question consists of several questions which have never been clearly distinguished. Once the proper distinctions are drawn, therefore, they may be replaced by other questions to which unambiguous answers can always be given. To show that this is so, all that is necessary is to analyse the possible meanings of the terms we are using.

In the traditional questions about sovereignty, the words which have been most often used ambiguously are the words 'sovereign' and 'state'. My first task, therefore, must be to analyse the different meanings which different philosophers, and sometimes the same philosophers, have given to these two words. I shall take, first of all, the word 'sovereign'.

(1) The word has been used by some as equivalent to a *supreme legal authority*. Those who have used the word in this way have not usually thought it necessary to define what they mean by authority, or to say how authority is to be distinguished from power or influence. It is clear, however, from the way in which they have written, that they have meant to draw some important distinction between these concepts. "Let us notice in the first place", writes Lord Lindsay, "that the doctrine of sovereignty is properly concerned with the question of authority. It is not properly concerned with questions of force or power as such."[1] This is predominantly the sense in which the word was used by John Austin, and by the lawyers of the Austinian school. I shall call this, sovereignty in the legal sense.

A word of further explanation, however, is needed. Theorists who have adopted the doctrine of the separation of powers have used the word 'sovereign' to mean either (*a*) a supreme legislative authority, as for instance in the case of Dicey, or (*b*) a supreme legislative or executive authority, as in the case of Lord Bryce. Those who have denied the separation of powers, on the other hand, have used the word to mean (*c*) a supreme legal authority, irrespective of whether it is the authority of a Parliament, a Ministry, or a Court; that is, they have used it to mean what would, on a separationist view, be regarded as a supreme legislative, executive or judicial authority.[2] In order to avoid over-burdening the present analysis, and in order also

[1] *The Modern Democratic State*, vol. i, pp. 217-218.

[2] *Cf.* Finer, *The Theory and Practice of Modern Government*, vol. i, chap. 1.

not to prejudge the case for or against the doctrine of the separation of powers, I shall use the words 'supreme legal authority' in this latter sense. I shall use them, that is to say, in what a separationist may regard as a generic sense, and what an anti-separationist may regard as the only appropriate sense. This will preclude any direct discussion of sovereignty in senses (*a*) and (*b*) above, but that will not affect my general argument. If the separationist view is the correct one, and if clear answers can be given to the traditional questions, using the present generic sense, then the same answers can always be given to the same questions, using senses (*a*) or (*b*). If, however, the separationist view is not the correct view, then the need to discuss senses (*a*) and (*b*) does not arise in any case.

(2) The word 'sovereign' has been used by others to mean a *supreme legal authority in so far as it is also a completely moral authority*. This is sovereignty as understood by Rousseau and the Hegelians. "The Sovereign", says Rousseau, "merely by virtue of what it is, is always what it should be." "Sovereignty", says Bosanquet, "is the exercise of the General Will", which "is expressed in law, in so far as law is what it ought to be".[1] It is, therefore, a species of sovereignty in the previous sense. For that reason, it is not always clear that a person who uses the word in this way is using it necessarily in a way which is different from the previous one. But we can, in fact, be sure that a different sense is involved wherever there is clear evidence that the writer would, in addition, deny the title of sovereign to a supreme legal authority which is not, in his opinion, a completely moral authority. When the word is used in this way, I shall say that it is used in the moral sense.

(3) For another group of philosophers the word has meant a *supreme coercive power exercised by a determinate body of persons possessing a monopoly of certain instruments of coercion*. They have not usually defined what they mean by coercive power, nor clearly stated how it is to be distinguished from legal authority or political influence. But it has been generally understood that power in this sense is to be distinguished from legal authority at least in one respect, namely, that its exercise may sometimes be extra-legal. In this sense, the sovereign is a determinate body of persons capable of *enforcing* decisions against any likely opposition, no matter who *makes*, or *otherwise carries out*, those decisions. Usually such a body consists of a professional police or a standing army; usually, too, the decisions which it enforces are those of Parliaments, Ministries and Courts, but they may be

[1] *The Philosophical Theory of the State*, pp. 232 and 107.

the analogous decisions of persons who have no legal authority to make such decisions, although such persons may acquire such legal authority in virtue of their decisions being enforced, *e.g.*, the dissolution of the Long Parliament by Cromwell, or the overthrow of the Directory by Napoleon. This use of the word ' sovereign ' is implied in Lord Bryce's concept of the Practical Sovereign, which he defined as " the strongest force in the State, whether that force has or has not any recognised legal supremacy." [1] T. H. Green also wrote as if he thought the word should ordinarily be used in this or some similar sense : " the term ' sovereign ' is best kept to the ordinary usage in which it signifies a determinate person or persons charged with the supreme coercive function of the state ".[2] I shall call this, sovereignty in the institutionally coercive sense.

(4) The word has again been used by some as equivalent to a *supreme coercive power exercised habitually and co-operatively by all, or nearly all, the members of a community.* Locke speaks variously of this kind of supreme coercive power as " the force of the community ", " the force of the majority ", and " all the force of all the people ", in such a way as to imply a distinction between this and the coercive power of a professional police or a standing army.[3] T. H. Green, although he did not favour the usage, held that the word *could* be used in this, or a very similar, way. " A majority of citizens *can* be conceived as exercising a supreme coercive power. . . . But as the multitude is not everywhere supreme, the assertion of its sovereignty has to be put in the form that it is sovereign ' de jure '." (p. 109.) This is also a meaning of the word which has sometimes, though not necessarily always, been implied both by those who have spoken of the ' sovereignty of the people ', and by those who have spoken of the ' tyranny of the majority '. When the word is used in this way, it will be convenient to say that it is used in the socially coercive sense.

(5) It may now be noted that these four different senses of the word ' sovereign ' refer to supreme authorities or powers, each of a different kind. But the fact that they are sovereigns of a different kind does not mean that they cannot, in some cases, be subordinated one to another according to some principle of subordination other than those already indicated. Some philosophers have, indeed, held that they can be so subordinated, and have tried to show accordingly which of these

[1] *Studies in History and Jurisprudence*, p. 511.
[2] *Lectures on the Principles of Political Obligation*, p. 103.
[3] For examples see *Treatise*, Book II, paras. 3, 88, 89, 96, 130, 131.

sovereigns is ' really sovereign '. By so doing, they have used the word ' sovereign ' in yet another sense. They have used it in a sense which is equivalent to what one might call the *strongest political influence*, where political influence is to be distinguished, in some way yet to be determined, both from legal authority and from coercive power. Many things may be regarded as sovereign in this sense, but usually this kind of sovereignty has been attributed to the popular majority, irrespective of whether the popular majority be also regarded as the coercive sovereign or not. The following examples from Locke and Dicey will indicate how the concept has been generally used. " Though in a constituted commonwealth ", writes Locke, " there can be but one supreme power, which is the legislative, to which all the rest are and must be subordinate, yet the legislative power being only a fiduciary power to act for certain ends, there remains still in the people a supreme power to remove or alter the legislative, when they find the legislative act contrary to the trust reposed in them." (para. 149.) " The plain truth ", says Dicey, " is that as a matter of law Parliament is the sovereign power in the state. . . . It is, however, equally true that in a political sense the electors are the most important part of, we may even say are actually, the sovereign power, since their will is under the present constitution sure to obtain ultimate obedience." [1] This I shall call sovereignty in the influential sense.

(6) There is, finally, a usage of the word ' sovereign ' which would make it equivalent to a *permanently supreme authority, power or influence*—the significant word in this case being the word ' permanent '. It seems to be a matter of custom among political theorists to make statements such as the following: ' Force is not sovereign in the state, for no state can be perpetually ruled by force alone '. Those who make such statements as this would not usually deny that a state may for some time be ruled by force alone; force may well be sovereign for some time, assuming some meaning of the word ' sovereign ' already given. But if now the title of sovereign is to be denied to a ' sovereign ' of this kind, clearly the word has once again shifted its meaning. It has shifted its meaning to the extent that a sovereign, in any of our previous senses, is no longer to be called sovereign unless it continues to exist for an indefinitely long time. Duguit says of Bodin, for instance, that " he defines sovereignty as ' the absolute and perpetual power in the state ' "; [2] and Professor Laski, with this definition

[1] *The Law of the Constitution*, eighth edn., p. 73.
[2] *Law in the Modern State*, trans. F. and H. Laski, p. 9.

apparently in mind, argues against Bodin as follows : " The government which acts as its (Professor Laski means the state's) sovereign organ never, as a matter of history, has the prospect of permanence if it consistently seeks to be absolute. Civil War and Revolution in the England of the seventeenth century, 1789 in France, 1917 in Russia, are all of them footnotes to the problem of sovereignty." [1] I shall call this, sovereignty in the permanent sense.

So much for the word ' sovereign '. It is necessary now to consider the word ' state '.

The word ' state ' has been used by philosophers in at least three different ways. (1) To some, it has meant a *politically organised society.* " The state ", says Sorley, " is not something separate from the citizen, and it is not something separate from the community or society to which it belongs. It is this society organised as a whole and able to act as a unity." [2] This is the sense of the word ' state ' which we usually have in mind when we are dealing with matters of international politics, *e.g.*, when we speak of small and large states, backward states, industrial states, European states, etc. (2) To others, it has meant a *politically organised society in so far as it is ideally organised.* This, in the main, is the Hegelian use of the term. " By the State, then ", says Bosanquet, " we mean Society as a unit, recognised as rightly exercising control over its members through absolute physical power." (p. 184.) Since this is a species of the state in the previous sense, it is not always clear that a person who uses the term in this way is using it in a sense which is different from the previous one. But, as with the moral sense of the word ' sovereign ', we can be sure that a different sense is involved whenever the writer is prepared to deny the title of state to a politically organised society which is not, in his opinion, ideally organised. (3) More often in ordinary speech, however, and sometimes in political theory, the word ' state ' has meant *government as an institution.* " The state ", says Professor R. M. MacIver, " exists within society, but it is not even the *form* of society " ; it is " a structure not coeval and co-extensive with society, but built within it as a determinate order for the attainment of specific ends." [3] This is the sense of the word which we usually have in mind when we are discussing matters of domestic politics, *e.g.*, when we speak of state enterprise, state employees, the revenues of the state, the machinery of the state, etc.

[1] *Grammar of Politics*, p. 49.
[2] Creighton and others, *The Theory of the State*, p. 32.
[3] *The Modern State*, pp. 5 and 40.

It may be that the words 'sovereign' and 'state' have been used in some senses other than these which I have indicated, but these at least are definite, it seems to me, as far as the history of political theory is concerned. Admittedly some of these senses are arbitrary, in that they are not the senses which are implied in the common use of the words by persons who are not political theorists; but to determine which is arbitrary and which is not is a question which need not concern us here, since it would not in any case affect any of the conclusions which may be derived from the foregoing analysis.

We are now in a position to answer the first of the traditional questions about sovereignty, namely, Is it necessary that there should be a sovereign in every state?

(1) If we are using the word 'sovereign' in the legal sense, it is not *logically* necessary that there should exist a sovereign in every state, on any of the three definitions of the word 'state', since it is clearly not self-contradictory to say that there does not exist in a state a supreme legal authority. But it is, however, *causally* necessary that there should exist a sovereign in every state, on any of our three definitions. I am now using the word 'cause' in the sense in which it is normally used in the practical sciences, and which has been defined by Collingwood to mean "an event or state of things which it is in our power to produce or prevent, and by producing or preventing which we can produce or prevent that whose cause it is said to be." In this sense it is causally necessary that a sovereign should exist in every state, since, in practice, government can only be carried on by means of laws, and laws can only be effectively administered if there exists some final legal authority beyond which there is no further legal appeal. In the absence of such a final legal authority no legal issue could ever be certainly decided, and government would become impossible.

(2) If, however, we take the word 'sovereign' in the moral sense, and if, in addition, we use the word 'state' in its second, or Hegelian, sense, then it is *logically* necessary that there should exist a sovereign in every state. For if the supreme legal authority which exists in a 'state' is not a completely moral authority, that 'state' is not an ideally organised society, that is, it is not a state on the present definition. This is an analytical proposition derived solely from the definitions of the terms used. But on any other use of the word 'state', of course, it is neither logically nor causally necessary that there should exist in any state a sovereign in this sense.

(3) It is not *logically* necessary that there should exist in a

state, on any of the three definitions, a sovereign in the coercive sense, since again, it is not self-contradictory to say that there does not exist in a state a supreme coercive power. But it is, nevertheless, *causally* necessary, in the present state of society, that there should exist in the state—senses (1) and (2)—a sovereign either in the socially coercive or in the institutionally coercive sense. Since it is a fact that many men in their present state are prone to disobey the law, it is necessary, if laws are to be effective, that they should be capable of being enforced. But laws can only be enforced in one of two ways, either by the habitual and co-operative exercise of coercive power in support of the law by indeterminate but exceedingly numerous persons in society, or else by the exercise of coercive power by a determinate body of persons, who are fewer in number, but who possess a monopoly of the instruments of coercion. Assuming, for the time being, that these two ways represent genuine practical alternatives, it is not causally necessary that there should exist in the state, as now defined, a sovereign in both the above senses, but only that there should exist a sovereign in the one sense or the other. But if, however, we are using the word 'state' in the third sense, the same facts would need to be stated rather differently. In this case we should have to say that it is causally necessary that an institutionally coercive sovereign should exist in the state, if there does not exist in society a sovereign of the socially coercive kind. That is, the state must possess a monopoly of the instruments of coercion, as long as there does not exist in society a sufficiently large number of persons capable of co-operating to enforce the state's decisions.

(4) If now we use the word 'sovereign' in the influential sense, it is neither logically nor causally necessary that there should exist a sovereign in every state. This is true on any use of the word 'state', since the strongest political influence may be exercised by bodies which exist, or events which occur, outside the boundaries of the state, *e.g.*, the influence of another powerful state, or of international economic events, etc. If we use the word 'state' in sense (3), moreover, there is the additional reason that the strongest political influence may be that of public opinion, which itself lies outside the state as the state is now being defined.

(5) It is, finally, neither logically nor causally necessary that there should exist in the state, on any of the given definitions, a sovereign in the permanent sense. In order, for instance, that the King in Parliament may be the legal sovereign to-day, it does not seem to be either logically or causally necessary that

he should continue to be the legal sovereign for an indefinitely long time.

Summing up now the above argument, it is possible to say (*a*) that it is necessary, *in the sense of logically necessary*, that there should exist a sovereign in every state, if we use the word 'sovereign' in the moral sense and the word 'state' in the sense of a political society ideally organised. It is also possible to say (*b*) that it is necessary, *in the sense of causally necessary*, that there should exist a sovereign in every state, if we use the word 'sovereign' in the legal sense or generically in the coercive sense, and if we use the word 'state' in any of the three senses indicated. On no other usages of the words 'sovereign' and 'state' can it be said to be necessary that a sovereign should exist in every state.

The three remaining traditional questions may be dealt with more briefly, since we shall no longer be concerned with the variations in the meaning of the word 'state'. The answers may be given in three groups corresponding to the three traditional questions.

(1) To the question, Is it necessary that the sovereign, if it exists, should be indivisible? the following answers may be given: (*a*) If by the word 'sovereign' we mean the legal sovereign, it is in one sense logically necessary that the sovereign should be indivisible, since it would be self-contradictory to hold that there could be more than one final decision on any one legal question; but it is neither logically nor causally necessary that the sovereign should be indivisible in the sense that every legal question should be finally decided by one and the same legal authority. This is equally true, if by the word 'sovereign' we mean a moral sovereign, since sovereignty of this kind is only a special case of sovereignty in the legal sense. (*b*) The same would also be true, *mutatis mutandis*, if by the word 'sovereign' we meant the institutionally coercive sovereign, the socially coercive sovereign or the influential sovereign. It is, in one sense, logically necessary that these sovereigns should be indivisible, since it would be self-contradictory to say of any two coercive powers which were of the same kind, or of any two political influences, that they were both at one and the same time the strongest. But it is neither logically nor causally necessary that these sovereigns should be indivisible in the sense that the power or influence in question may not be divided between two or more bodies. (*c*) If, however, we use the word 'sovereign' in the permanent sense, no questions about indivisibility arise, other than those already answered in connection

with its other meanings. The additional qualification of permanence now introduced does not affect the present issue.

(2) The answers to the third of the traditional questions, namely the question, Is it necessary that the authority or power or influence of the sovereign should be unlimited ? will depend on what political theorists have meant when they have used the word ' unlimited '. The word has been used in at least two different ways. (*a*) Some have used it as equivalent to ' omnipotent '.[1] When it is used in this way, it is clearly neither logically nor causally necessary that sovereignty, in any sense, should be unlimited. In the United States, for instance, there exists no legal authority which can legally deprive any State within the Union of its equal representation in the Senate. Standing armies everywhere are dependent on other persons for their supplies of arms and equipment, and the larger the army the greater its dependence, in this respect, on the rest of the population. Equally, there are few political groups which can successfully influence legislation without compromising to some extent with rival groups. On no usage of the word ' sovereign ', therefore, is it necessary that sovereignty should be unlimited in this sense. (*b*) The word ' unlimited ' has often been used, however, in a weaker sense, to mean ' exceedingly great ' or ' superior to any other '.[2] When the word is used in this way, it is logically necessary that sovereignty, in any sense of the word, should be unlimited. But to say that it is, is now to utter rather a pointless tautology. It is simply to say that a supreme legal authority must be supreme, and so on, *mutatis mutandis*, for any other use of the word ' sovereign '.

(3) The fourth of the traditional questions, namely, Where is the sovereign located ? may now be easily dealt with, since it resolves itself into a series of entirely empirical questions requiring straightforward historical, legal or sociological answers. It is not necessary here, therefore, to establish what the correct answers are in this case, but merely to indicate what kinds of answers would be appropriate. It would be appropriate, for instance, though not necessarily true, to say that the sovereign was located in the King in Parliament, or the Cabinet, or the House of Lords (legal or moral sense), or in the bulk of the people or in the army (coercive sense), or in the electoral majority or in the economically dominant class (influential sense), or nowhere,

[1] *E.g.* Laski, *op. cit.*, pp. 51-53; Popper, *The Open Society and its Enemies*, vol. i, p. 107.

[2] *E.g.* Bryce, *op. cit.*, pp. 522-523; Laird, *The Device of Government*, pp. 83 f.

because no such sovereign at present exists (moral or permanent or any other sense). Needless to say, this question, or rather these series of questions, may still be difficult to answer, but if so, that is now due to insufficient empirical evidence, rather than to any ambiguity or other logical impropriety in the question. Not all questions which are difficult to answer are logically improper questions.

Answers have now been given to the traditional questions about sovereignty. If these are satisfactory, and I trust they are, then the traditional questions are not pointless questions, however much they may require analysis, and the theory of sovereignty may still be used in such a way as to present at least a consistent theory of politics.

II

The analysis which has now been given, I submit, removes the ambiguities in the traditional theory. Unfortunately, however, it does so only at the expense of making the theory so complicated that it is no longer economical or serviceable to use. The dilemma with which we are faced, therefore, if we wish to retain the concept of sovereignty, is very great. If we preserve the traditional simplicity of the concept, it is too ambiguous to be of service, but if we draw the distinctions necessary to avoid these ambiguities, the analysis of the concept becomes so complicated that its use is no longer helpful. Is there, then, any way of overcoming this difficulty? Is it possible to recommend a use of the concept which will both remove the ambiguities of the traditional theory and preserve it as a useful instrument of political analysis? It seems to me that this is possible, and I shall now endeavour to show how I think this can best be done.

In the first place, the use of the word 'sovereign' in the permanent sense may, with every advantage, be abandoned altogether. If the word 'permanent' is taken literally to mean 'lasting for an indefinitely long time', then this usage is objectionable for two reasons. (1) If we are referring to states which have existed in the past, the concept is so imprecise that no two historians could easily agree as to whether or not a sovereign in this sense did or did not exist in any given state. Did such a sovereign exist, for instance, in the Roman Empire? Some would say not. (2) If we are referring to contemporary states, it is impossible to *know* that a sovereign in this sense exists in any state, for even though it is conceivably possible that some

existing ' sovereign ' may last for an indefinitely long time, it cannot possibly be *known* that it will. Nor is it easy to see what other use of the word ' permanent ' would justify the retention of the concept. It may be, of course, that some theorists have meant by ' permanent ' the same thing as ' stable ', but, although it is causally necessary that a sovereign should be stable, this does not justify a separate use of the word ' sovereign '. The fact that a certain characteristic belonging to a thing is a *causally necessary* characteristic, in the sense of causal necessity used here, does not justify our making it a *definitional* characteristic of that thing. A well-drained soil is necessary to grow most plants and vegetables, but the fact that it is not well-drained does not mean that we no longer call it soil.

In the second place, the concept of the sovereign as the moral sovereign may also be abandoned without loss. All the issues which can be discussed with the help of this concept can be discussed more adequately and more usefully with the aid of the concept of obligation. If we define the state in such a way as to identify it with the ideal state, then we can quite logically speak of the sovereignty of the state in the moral sense, but this simply means that we are defining the state and the sovereign in such a way that no organisation is a state, and no authority a sovereign, unless we recognise a moral obligation to obey them. There is nothing logically objectionable about this, so long as it is understood that this is simply a way of approaching the problems of political obligation. But in practice this method of approach is objectionable for two reasons. (1) Since the definition of the state is arbitrary, the method is liable to slip from being a method of approaching problems of political obligation to being a method of justifying any state or political régime which happens to exist. This occurs whenever the meanings of the words ' state ' and ' sovereign ' slip from their announced meanings into one or other of their more familiar meanings. (2) It tends to prejudge certain questions of ethical theory. The concept of the sovereign as a moral authority tends to establish a strong *presumption* in favour of the view that there are certain moral standards which are the same for all persons, at least within any given political group. But although it may well be true that an objective theory of some kind in ethics is the correct one, this is a question to be examined in the light of our moral experience as a whole, and not one to be prejudged in the interest of a political theory.

This leaves four other concepts, the value of which needs now to be determined.

There is no doubt that the concept of legal sovereignty is valuable in any discussion of the legal aspects of the state's activity. On any definition of the state, as we have seen, it is causally necessary that a sovereign of this kind should exist in every state, and the question, Where is the legal sovereign located ? is a fundamental question for every lawyer. Indeed, no contemporary political theorist seems to be prepared to deny the utility of the concept in this limited field, and those who have attacked the use of the concept have done so simply because its utility is confined to this particular field. Since its utility is confined to this field, it is argued, the concept is worthless for more general political purposes. This is a criticism which may fairly be levelled against anyone who maintains that this use of the word 'sovereign' is its only "proper" use, and who then ignores its other, allegedly "improper" uses. For, in that case, the theory of sovereignty becomes predominantly a legal theory without relevance to political issues, except in so far as these also happen to be legal issues. But suppose we allow, as certainly we should, that there can be more than one "proper" use of the word 'sovereign'. What then becomes of this criticism ? A theory of sovereignty which permits a number of proper usages of the word 'sovereign', may easily allow that the concept of legal sovereignty is only useful within a limited field, without thereby limiting its own utility to the same field.

But there is a further requirement which needs to be met if the concept is to be worth using at all, and that is to define more precisely what is meant by supreme legal authority. To exercise authority, in its widest sense, is to determine a person's actions in certain intended ways by means of a rule. It is possible, however, to distinguish different kinds of authority by distinguishing the different ways in which different rules, and sometimes the same rules, may oblige a person to act. In this way, the following kinds of authority may be distinguished: (1) authority of a moral kind, where a rule obliges a person to act in virtue of its being accepted by his own conscience, (2) authority of a customary kind, where a rule obliges him to act in virtue of his desire not to incur the disapproval of some other person or persons, *e.g.*, the authority of a tribal chief or of a father of a family, and (3) authority of a coercive kind, where a rule obliges a person to act in virtue of its being enforced, usually with a penalty attached, in the event of disobedience. There are, however, two further sub-species of this latter kind of authority: (*a*) authority of the kind where the rule is usually enforced by a coercive power, but not by a supreme coercive power, *e.g.*, the

authority of a schoolmaster (in some respects), of a trade union, or of an umpire at a cricket match; and (*b*) legal authority in the strict sense, where the rule, whether it takes the form of a written regulation or of an unwritten convention, is enforced either directly by the exercise of a supreme coercive power, or indirectly by a serious threat of the exercise of such power, *e.g.*, the authority of a king, of a parliament, or of a judge. Legal authority, therefore, is one species of authority, and, when exercised, may be defined as the determination of a person's actions in certain intended ways by means of a law, law being defined as an unwritten convention or a written regulation, enforceable either directly by the exercise of a supreme coercive power, or indirectly by a serious threat of the exercise of such power. From this standpoint the definition of what is meant by the exercise of legal sovereignty presents no further difficulty. To exercise legal sovereignty, or supreme legal authority, is to determine the actions of persons in certain intended ways by means of a law as previously defined, where the actions of those who exercise the authority, in those respects in which they do exercise it, are not subject to any exercise by other persons of the kind of authority which they are exercising.

The definition of law given above is not yet entirely satisfactory since the concept of supreme coercive power, as yet undefined, occurs in the definition. This will be remedied in due course. Leaving the matter for the time being in abeyance, the definitions now given differ in two respects from the definitions given by Austin: (1) the definition of law is wider and designed to include customary law as well as case law and statute law, and (2) legal sovereignty is defined in terms of law rather than *vice versa*. The latter point has important implications, in that it enables us to reduce constitutional law, as it exists in either the United States or in Great Britain, to positive law. This is theoretically important, since it enables us to bring the theory of legal sovereignty into line with the more fundamental aspects of constitutional and federal government. Moreover, it enables us to do this without necessarily abandoning the command theory of law, since anyone who wishes to hold that theory may still claim that, although judges and legislative assemblies say what the rules are, it is the command of the *coercive* sovereign (*not* the legal sovereign, as Austin seems to have thought) which gives those rules the status of law.

As to the concept of coercive sovereignty, it is clear that this is no less important than the concept of legal sovereignty. Where it is necessary that a legal sovereign should exist, it is

also necessary, as we have seen, that a coercive sovereign should exist. There is, in fact, a functional connexion between them. Human nature being what it now is, it is necessary, if certain rules are to be obeyed, that they should be capable of being enforced; and, in order that they may be capable of being enforced, it is necessary that there should exist some body of persons sufficiently strong to enforce such rules against any likely opposition within the community. It is this functional connexion which was recognised in our definition of law and of legal sovereignty, both of which were defined, at least partly, in terms of supreme coercive power. There is little doubt, it seems to me, that the utility of the concept is great, and that its use in political theory is fully justified.

There are separate objections, however, which might be raised against both what I have called the institutionally coercive sovereign and the socially coercive sovereign. These require to be considered.

It might be objected that the concept of the institutionally coercive sovereign is itself ambiguous. As it has been usually employed, this is certainly a fair criticism. Very often, the sovereign in this sense has been understood to be, not the army or the professional police, but the person who has the legal or effective control of the army or the police, *i.e.*, not Cromwell's army, but Cromwell. This is a practice based on one of two different kinds of confusion. The first is the identification of a whole with a part, or of a group with a member. When the army, commanded by Cromwell, enforces the decisions of Parliament, Cromwell is a *member* of the coercive sovereign and may himself be called sovereign only by a metaphor. The second confusion is to identify coercive sovereignty with legal sovereignty. When Cromwell's army enforces the decisions of Cromwell as against the decisions of Parliament, or even the decisions of Parliament as dictated by Cromwell, Cromwell is not the coercive sovereign; he is simply appropriating legal sovereignty. Provided these two confusions are removed, however, the concept is no longer ambiguous.

The utility of the concept of the socially coercive sovereign might be questioned on the ground that no such coercive power can in fact exist. There is no doubt, however, that there have been historical examples of a supreme coercive power of this kind, notably the police system known as the frankpledge system in medieval England, and similar systems elsewhere. There are, nevertheless, fairly definite conditions under which a coercive power of this kind may be exercised. It can be exercised

only, (1) if all or nearly all adult men can be effectively organised for police duties, (2) if all or nearly all men have access to certain kinds of arms and are trained in their use, and (3) if there do not exist serious social cleavages within the community. Where any one of these conditions, and more especially the third, is lacking, law can only be maintained in the last resort by a professional police or armed force. Very often, however, the two coercive systems may exist side by side within the same community. It is often the case, as in England for many centuries, that the socially coercive power performs the coercive functions necessary in the case of those breaches of the law on which society is not deeply divided, such as crimes committed against the common law in times of peace, while the institutionally coercive power is held in reserve to deal with possible large-scale breaches of the law, such as a riot or a threatened revolt or uprising. Of more theoretical interest, it is the existence side by side of these two coercive systems which enables us to regard customary law as genuine law, and thus justify the wide definition of law previously given.

There is no doubt, therefore, that these two concepts of coercive sovereignty are useful. Since they represent, however, two species of a single genus, the theory of sovereignty may be simplified without loss of comprehensiveness or clarity, if we use the word 'sovereign' in a generic sense only. Traditionally, in order to simplify the theory, it has been the custom to confine the use of the word 'sovereign' to one or other of the relevant species. This is what was recommended by T. H. Green, for instance, when he said that "the term 'sovereignty' is best kept to the ordinary usage in which it signifies a determinate person or persons charged with the supreme coercive function of the state". But this is simply a further example of the common error of assuming that some one possible meaning of the word 'sovereign' is a "proper" meaning, while all other possible meanings are to be ignored. In this case, indeed, the error is committed twice over. Not only is it assumed that one generic usage rather than another (*i.e.*, the coercive rather than the legal usage) is the proper usage, but also it is assumed that, within this genus, the word is properly confined to one of the species. There is no solution of our problem along these lines. The only solution lies in accepting both usages, or, if the requirements of simplification are over-riding, in accepting only a generic usage. In this case, there is everything to be said for retaining only the generic usage.

This means that it is necessary now to define what is meant

by supreme coercive power, and, in particular, to distinguish coercive power from legal authority and from political influence. To exercise power, in a social and political sense, is to determine the actions of persons in certain intended ways. There are, however, different species of power, and these may be distinguished according to the means used to determine persons' actions. We thus have the following species. (1) Power in the sense of authority, especially legal authority, where the means used is the formulation of, or the reference to, a rule of law, *e.g.*, 'the powers of the President', 'the powers of local authorities', etc. This species of power we have already considered. (2) Coercive power, where the means used consists either in the direct use of physical force, or else in a serious threat of the use of force, *e.g.*, 'the power of the police'. (3) Power in the sense of influence, where the means used may be any means other than the employment of a rule of law or of physical force, *e.g.*, 'the power of the priest'. In all these cases, of course, one often finds, in addition, figurative expressions in which the power is ascribed to the means used rather than to the persons using it, *e.g.*, 'the power of the law', 'the power of the bayonet', 'the power of money', etc.

It is now possible, however, to define coercive power. Coercive power, when it is exercised, is the determination of a person's actions in certain intended ways, either by the direct use of physical force, or else by a serious threat of the use of force. Only a further step is therefore necessary in order to define what is meant by the exercise of coercive sovereignty. A person or a body of persons may be said to exercise coercive sovereignty, or supreme coercive power, if it determines the actions of persons in certain intended ways by means of force or the threat of force, and if the actions of the persons who exercise the power, in those respects in which they do exercise it, are not themselves capable of being similarly determined.

This leaves one more concept to be considered, namely, that of the influential sovereign. The most serious objection which might be raised against the retention of this concept is that it is seldom possible to determine the existence of an influence, and never possible to determine its strength, even when we know that it exists. In the case of legal authority and coercive power we can directly observe certain written rules and punitive instruments; we can observe the ways in which these are being used, and thereby discover chains of authority and power. But how does one determine the existence of an influence and, more especially, the strength of an influence? The objection is one of

fundamental importance, since, if there is no means of doing this, the concept is obviously pointless.

It does not seem to me, however, that this objection is finally convincing. The determination of degrees of influence is a job which economists, historians, anthropologists and politicians have often to undertake, and one which they often undertake quite successfully. There are two ways in which this can be done. (1) By means of experimental methods, *i.e.*, by deliberately changing the supposed determinants with the view to observing the concomitant changes, if any, in the behaviour of the persons whose actions are supposed to be influenced, *e.g.*, in order to test the extent of the influence which slum surroundings have upon children, it is possible to remove a number of children from these surroundings and observe the changes, if any, in their behaviour. (2) By means of historical abstraction, *i.e.*, by abstracting past variations in the supposed determinants and correlating these with the variations, if any, in the behaviour of the persons or bodies of persons whose activities are supposed to be influenced, *e.g.*, in order to determine the influence of economic factors on the techniques of instrumental music, it is not necessary to change the economic system here and now ; it is possible by means of abstraction to isolate past economic changes and to correlate these with past changes, similarly isolated, in techniques of instrumental music. In order to determine degrees of political influence, however, it is true that the first of these methods is rarely applicable, since, although the determinants of political influence are capable of being changed, they are seldom if ever capable of being changed experimentally, *i.e.*, the changes once carried out are not reversible, so that they cannot usually be carried out at all unless there exists a widespread desire to abandon the older state of affairs for good. But the method of historical abstraction is generally applicable and its practical possibilities are greater the greater the accumulation of historical knowledge. There does not seem to me, therefore, to be any valid objection to the use of the present concept on the ground that it is not possible to determine degrees of political influence.

There are, in addition, strong positive reasons for retaining the use of the concept. Questions about influence are as important in politics as questions about legal authority and coercive power. Are the decisions of the legislature, for instance, primarily determined by the interests of a social class, or by the state of trade, or by the opinion of the majority of the electorate formed independently of class interest and in ignorance of world conditions, etc., etc. ? All these questions, and many others like

them, are questions about political influence. Generalised, they amount to the one question, Where is the influential sovereign located ? What the correct answer to this question may be is, of course, a different matter, but that the question itself is an important one seems to me to be beyond doubt. It is important because a correct answer to it would enable one to intervene more effectively in political affairs. If we wish to determine what Acts of Parliament shall be passed, without being ourselves Members of Parliament, it is important to know which is the most effective way of doing so, whether to try and convince the majority of the electorate, or to try and convince or overthrow the ruling class, or to do something else.

There is, however, one important qualification which needs to be stated if the concept is to be successfully used in this way, namely that the strongest political influence has to be a domestic and not a foreign influence. When the persons, or bodies of persons, who exercise a certain influence within a state, normally reside outside that state, then either it is impossible for any citizen to affect their actions or else, if he can do so, he can usually do it only through the legislature. In either case, his knowing where the strongest political influence lies, will not help him to determine the activities of the legislature. The concept is useful, therefore, only when the actions of the legislature can be regarded as being predominantly determined by the actions or wishes of persons who normally reside within the state, whether they be the whole people or a part of them. Its utility is clearest, of course, where there exist political conventions expressly designed to secure the supremacy of a certain kind of influence, as when a government is given a 'mandate' in an election; but its utility may be equally great in practice where there exist no accepted political conventions of this kind, as when the government is in fact an instrument of an oligarchy or a priesthood.

Since we must, therefore, as it seems to me, accept the concept, it now remains to define it. This is a difficult matter, since the concept is a residual concept and can only be defined negatively in terms of other concepts. I propose, however, to construct a definition in the following way. To exercise influence, as we have seen, is to determine a person's actions in certain intended ways, by some means other than by a rule of law or a threat of force. But in order that any influence may be regarded as a political influence, it must be an influence on politics, and to say that anything is an influence on politics is to say that it determines the actions, jointly or severally, of the legal and

coercive sovereigns. For instance, certain elements of a country's culture, such as knowledge of the country's history, can often in this sense be a means of political influence, in a way in which other elements of its culture, such as a knowledge of mathematics or a taste for good music, very seldom can be. To exercise political influence, therefore, is to determine in certain intended ways the actions, jointly or severally, of the legal and coercive sovereigns, provided always that their actions are determined by some means other than by a rule of law or a threat of force. It is now possible to define what is meant by the exercise of sovereignty in the influential sense. To exercise sovereignty in this sense is to exercise political influence, as now defined, to a greater degree than anyone else, provided that those who exercise it normally reside within the state whose legal or coercive sovereign they are supposed to influence.

Before leaving these definitions, there is one further point to be made. The definitions now given do not define sovereignty, but the exercise of sovereignty; that is, they define different kinds of events or occurrences. Words like 'sovereignty', 'power', 'authority', and 'influence', however, have this peculiarity, that when used in a sentence they do not inform us of any events now happening or about to happen, but of the probability of such events under certain understood conditions. In this respect, they resemble the names of dispositions. To say that x is sovereign, for instance, is to say, among other things, (1) that if a new law were to be enacted, and if no revolution occurred in the meantime, etc., then x would enact it (legal sense); or (2) that if an uprising were to take place, and x was not itself disaffected, etc., then x would suppress it (coercive sense); or (3) that if a new law were to be enacted, then x would determine the kind of law which the legislators would enact (influential sense). To say that a certain body of persons is sovereign, therefore, is not to say that it now determines the actions of persons in certain intended ways, etc., but that it recurrently succeeds in doing this under certain understood conditions, and will continue to do so under the same conditions in the future. This is the element of truth in the otherwise misleading view that sovereignty implies permanence. Sovereignty does imply recurrent activities of a certain kind under certain understood conditions, but it implies nothing about the duration of the conditions. It is also the much larger element of truth in the still somewhat misleading view of Austin, that sovereignty implies *habitual* obedience on the part of the bulk of the subjects. To say that sovereignty implies habitual obedience is false, if by

'habit' we mean a disposition of which the occurrent manifestations are voluntary and automatic, as in the case of smoking and swearing. Sovereignty does, however, imply recurrent acts of obedience, as distinct from habitual obedience in the strict sense, and to this extent Austin was right. Once we understand the proper logical function of words like 'sovereignty', 'power', 'authority', etc., we can easily embrace the element of truth in these views, without at the same time committing ourselves to the errors which they have helped to propagate.

III

We are now in a position to deploy the results of the above discussion. The main purpose of the discussion so far has been to simplify the theory of sovereignty as analysed in the first part of this paper, while at the same time avoiding the logical ambiguities of the traditional theory. This has been done by reducing the six concepts, mixed up in the traditional theory, to three concepts, now systematically defined and analysed. These three concepts, taken together, constitute an analysis of the concept of power as used in political theory. If this analysis is in general correct, then the applicability of the theory of sovereignty to modern political conditions should follow as a matter of course. A test of its correctness, therefore, is whether its applicability to these conditions does in fact follow.

The usual objections raised against the theory of sovereignty on the score of its inapplicability to modern political conditions, are the following: (1) that the theory is inapplicable to the most important political developments of the last hundred years, namely, political democracy, political federalism, and public law as represented in welfare legislation; (2) that it is incompatible with belief in international law, and (3) that it is powerless as a theoretical device to safeguard the individual against despotism. I shall now briefly consider whether the above analysis of the concept does in fact meet these objections.

In the case of democracy, not only is the theory outlined above consistent with the facts of the case, but it enables a classification of democratic systems which, in itself, it seems to me, is both interesting and useful. If democracy is defined as majority rule, we may distinguish the different species of democracy by distinguishing the relations which may exist (1) between the majority and the legal sovereign, and (2) between the majority and the coercive sovereign. In both cases, there are two relations

which may exist between them: (*a*) the majority may itself constitute the sovereign or (*b*) it may be the strongest influence on the sovereign (*i.e.*, may itself constitute the influential sovereign). These are the relations commonly referred to, more especially when used with reference to the state's legal functions, as direct democracy and indirect democracy respectively. Since, however, every state has both legal and coercive functions, and since either function may be characterised by either of these two relations, we have four ideal forms of democracy, as follows: (1) Direct legal and direct coercive democracy, *e.g.*, the political organisation of some highly developed tribal societies; (2) Direct legal and indirect coercive democracy, *e.g.*, the political organisation of some of the Greek city states; (3) Indirect legal and direct coercive democracy, *e.g.*, the state of affairs existing on the American frontier during the last century, approximately; (4) Indirect legal and indirect coercive democracy, *e.g.*, Parliamentary democracy where it exists at its best. Whatever the merits of this classification, it demonstrates, at least, that the theory of sovereignty now presented is fully applicable to the general conditions of political democracy.

We may turn then to the argument from federalism. This has been held to be fatal, in particular, to the concept of legal sovereignty. Where in the United States, for instance, is the legal sovereign located? One school replies that the legal sovereign is the constitution; but since the constitution can be legally amended by both Houses of Congress acting in conjunction with three-fourths of the States of the Union, this is hardly plausible. Another school consequently replies that the legal sovereign is both Houses of Congress acting in conjunction with three-fourths of the States of the Union. But since this body has acted as a body only on twenty-one occasions in a hundred and sixty years, and since both Houses of Congress, in any case, derive their own legal existence from the constitution, this is even less plausible. The question is clearly an embarrassing one, and becomes even more embarrassing once it is realised that there is nothing in the nature of the dilemma which makes it one peculiar to federal states. It is a dilemma which arises whenever we have to deal with legal systems which distinguish between ordinary law and constitutional law, whether the constitution be federal or otherwise. What then is the answer to this dilemma?

There is, of course, a perfectly simple answer, namely that in constitutions of this kind—and in almost any constitution, for that matter—there exist at least two supreme legal authorities,

one having supreme authority in one set of decisions, on one level of generality, and the other supreme authority in another, on a different level of generality. The traditional objection to this straightforward answer has been that legal sovereignty is not, in that case, necessarily indivisible. But as has been previously shown in this article, the phrase ' sovereignty is indivisible ' can mean in this context two quite different things. In one sense it is logically necessary that sovereignty should be indivisible, namely in the sense that it would be self-contradictory to hold that there could be more than one final decision on any one legal question, but it is neither logically nor causally necessary that the sovereign should be indivisible in the sense that every legal question should be finally decided by one and the same legal authority. Although traditional theory was right, therefore, in holding that sovereignty is in some sense indivisible, it is not indivisible in the sense necessary to sustain the above objection. In which case, there is no further difficulty.

The argument from welfare legislation has again been held, with greater apparent justification, to be fatal to the concept of legal sovereignty. The argument is put by Duguit as follows (p. 31):

> " If the state is not sovereign in one only of its activities it is never sovereign.
>
> " Yet in those great state services which increase every day—educational, the Poor law, public works, lighting, the postal, telegraph and telephone systems, the railways—the state intervenes, but it intervenes in a manner that has to be regulated and ordered by a system of public law. But this can no longer be based on the theory of sovereignty. It is applied to acts where no trace of power to command is to be found."

In this statement, two criticisms of the theory of legal sovereignty are implied. In the first place, it is implied that since all welfare legislation *legally* binds the government to provide certain services for the community, such a government can no longer be regarded as *legally* sovereign. Secondly, it is implied that the theory of legal sovereignty requires one to hold a command theory of law, whereas in welfare legislation there is, in fact, no trace of command to be found.

The first of these criticisms is much the more important of the two. To meet it at all, it is necessary seriously to face the question: How can a supreme legal authority be *legally* subject to its own rules? Hitherto it has been well-nigh universally

held that to admit the implication in this question would be tantamount to asserting a self-contradiction. All political theorists have found it logically necessary, therefore, either to deny the existence of legal duties on the part of the government so as to be able to maintain its legal sovereignty, as with Austin, or else to deny its legal sovereignty in order to assert its legal duties, as with Duguit. But neither of these standpoints appears to me to be in the least plausible. In fact, it is quite clear that both standpoints are the opposite poles of one and the same antinomy, and one of the chief merits which can be claimed for the theory of sovereignty now presented here is that it enables us to discover the conceptual source of this antinomy and thus to dispose of it once and for all. The antinomy arises from a failure to distinguish between legal and coercive sovereignty. If these two concepts are identified, it does become logically self-contradictory to hold that a supreme legal authority can be legally subject to its own rules. For if a genuine sovereign is, by definition, a composite sovereign having both legal and coercive functions, and if this composite sovereign prescribes rules to itself, then either those rules cannot be enforced against the sovereign, in which case they are not genuine laws, or else, if they are genuine laws and can be so enforced, the so-called sovereign is not a genuine sovereign. But if the concepts of legal and coercive sovereignty are not identified in this way, this self-contradiction does not arise and the antinomy disappears. For in this case, the rules prescribed by the legal sovereign to itself may be enforced against itself by the coercive sovereign, and may thus be correctly called laws, while the legal sovereign, which is thus subjected to its own rules, is subjected only in virtue of the enforcement of the rules by the coercive sovereign and not in virtue of their prescription, in which case it is still no less sovereign legally. In short, just as the distinction between the legal and coercive sovereigns enabled us to show how constitutional law can be positive law, so also it enables us to show how a supreme legal authority can be legally subject to its own rules. To this extent the argument from welfare legislation can be turned into an argument in favour of the theory of sovereignty presented here.

The second criticism is less important, and there are, in any case, two replies which may be made to it. In the first place, although it is logically necessary that a person who holds a command theory of law should also hold a theory of sovereignty of some kind, since the existence of a command implies the existence of a commander, there is no such necessity for a person

who holds a theory of sovereignty to hold a command theory of law. Even if it is true that the rules of a supreme legal authority cannot be correctly interpreted as commands, this is not the slightest evidence for believing that they are not the rules of a supreme legal authority. In the second place, even if one were obliged to hold a command theory of law, this need no longer be embarrassing. On the above theory of sovereignty, an advocate of the command theory of law need no longer argue that acts of welfare legislation consist of commands issued by the legal sovereign, whether addressed to itself or to anyone else. He can now argue that in so far as these rules are genuine laws and not self-imposed moral precepts, they consist of the commands of the coercive sovereign addressed to the legal sovereign. This is at least plausible. Indeed, on this view, it can hardly be now said that the existence of welfare legislation presents any serious difficulty for a command theory of law.

And now the argument from international law. It has been said that the growth of international law is incompatible with the sovereignty of the state, but this is a vague criticism, and in order to give it some precision it is necessary to clarify its terms. It is necessary, in particular, to distinguish two uses of the word 'law'. It may mean (*a*) a body of rules enforceable by institutions having supreme coercive power, *i.e.*, positive law in the strict sense; or it may mean (*b*) a body of formal and solemn agreements, usually between states, the maintenance of which is solely dependent upon the recognition of an interest or a duty by the contracting parties. I shall call it agreement law. The argument that the growth of international law is incompatible with the sovereignty of the state may, therefore, mean any one of four different things. It may mean (1) that the existence of a supreme legal authority within a state is incompatible with the existence of a world positive law; or (2) that it is incompatible with the existence of an inter-state agreement law; or (3) that the existence of inter-state agreement law is incompatible with the existence within a state of a sovereign in the influential sense; or (4) that the existence within a state of a sovereign, whether in the legal, coercive or influential sense, is a practical obstacle to the free development of inter-state agreement law and/or universal positive law. What now then may be said of these four arguments?

Of the first argument, namely that the existence of a supreme legal authority within a state is incompatible with the existence of a world positive law, there are two things to be said. (*a*) Since such a thing as a world positive law does not as yet exist,

any incompatibility which there may be between its own existence and that of a supreme legal authority within a state, does not, in present circumstances, argue the non-existence of the supreme legal authority. (*b*) Even if a universal positive law did exist, its existence would be incompatible, not with the existence of a supreme legal authority within the state, but with the existence of *more than one* legally sovereign state, which is quite another matter. Of the second argument, that the existence of a supreme legal authority within the state is incompatible with the existence of an inter-state agreement law, it must be said that this is no argument at all. The alleged incompatibility simply does not exist. If two bodies, both of which are legally sovereign within different territories, reach certain solemn agreements with each other, it is simply false to assume that they thereby cease to be legally sovereign within their own respective territories. The third argument, however, is valid criticism of most traditional theories of sovereignty. It is often true, although not always, that the existence of an international law is incompatible with the sovereignty of the state in the influential sense. The existence of an international agreement may in practice be as binding upon a government as any positive law, although in a different way, and to ignore this would be to ignore a fact of very great political importance. Whether it is so or not, however, is an empirical question. It is entirely a question of fact whether the strongest influence on the legal sovereign is an international or a domestic influence. But assuming that it is in fact an international influence, this implies no criticism of the theory of sovereignty advocated here, since it is not essential to this theory to hold that it is either logically or causally necessary that there should exist in any state a sovereign in the influential sense. The fourth argument was the argument that the existence of sovereignty in any sense is a practical hindrance to the free development of inter-state agreement law and/or universal positive law. In this case, the contention itself may well be both true and important, but even if true it does not in the least deny the existence within the state of a sovereign in any of the senses indicated. The fact, if it is a fact, that these things hinder the growth of international law, is no proof, unfortunately, that these things do not exist.

Lastly, is it true that the theory of sovereignty is powerless to safeguard the individual against despotism ? Undoubtedly, as against much the greater part of traditional theory, this charge is justified. The traditional theory has been extremely liable to slip into one of two positions, either (1) of identifying

sovereignty in a legal or coercive sense with sovereignty in a moral sense, or (2) of ignoring sovereignty in the influential sense. The first standpoint is exemplified in the Rousseau-Hegel-Bosanquet tradition, the second in the Bodin-Hobbes-Austin tradition. The effect of the former was to prejudge all questions of political obligation in favour of the despotic claims of the state, while the effect of the latter was to put the law and the coercive forces of the state, for theoretical purposes, beyond the possibility of control by society. The one told the subject, in effect, that he ought to have absolute government because it is good for him, the other that he must have absolute government if he is to have any government at all. Either standpoint is vicious, whether from a theoretical or a practical point of view. But, equally clearly, neither standpoint is essential to a theory of sovereignty. They are simply by-products of ambiguities in the statement of the theory, and can be easily removed once the proper distinctions are drawn. The purpose of this article has been to draw these distinctions, and thus to safeguard the theory against this as well as the other charges.

Aberystwyth.

V.—A NOTE ON VERIFICATION

By Frederick C. Copleston, S.J.

1. (i) In *Human Knowledge: Its Scope and Limits* (p. 167) Lord Russell makes a distinction between "meaning" and "significance". "The significance of a sentence results from the meanings of its words together with the laws of syntax. Although meanings must be derived from experience, significance need not". I agree with this; though I certainly do not wish to try to make Lord Russell responsible for any use I may make of this distinction.

(ii) That "meanings" must be derived in some way from experience seems to me to follow from the facts of human psychology. Not being prepared to accept the existence of innate ideas in the sense in which Locke attacked the hypothesis of innate ideas, I am prepared to accept the general position of Locke that the two sources of our empirical knowledge are sense-perception and introspection. (I am not prepared to dispense with the use of the latter term.) In the "concept" language I should say that our concepts are formed in dependence on, or through reflection on, the data of experience. Some experimental datum or data must be relevant to the formation of a concept, if that concept is to be intelligible to us. In this perhaps rather loose sense I accept Lord Russell's assertion that "meanings must be derived from experience".

(iii) The significance of a sentence need not be directly derived from experience. In other words a statement may be significant even though we do not know whether it is true or false. If I say that there are galaxies receding from us so fast that no light from them can possibly reach us, experience is certainly relevant to the formation of the ideas of "galaxies", "recession", "speed", "light", and the sentence has significance; but I may not *know* whether the sentence is true or false. Let us suppose that the sentence states an hypothesis put forward in order to explain certain observed data. The hypothesis then rests on inference, *i.e.* on reflection on the data of experience.

(iv) In order that the sentence should be significant must it be verifiable? Obviously, it need not be verifiable in the "strong" sense of the word "verifiable". Must it be verifiable in the "weak" sense of the word? If the possibility of con-

ceiving or imagining facts which would make the statement true will count as "verifiability in the weak sense", then I should say that the sentence, to be significant, must be verifiable in the weak sense. Perhaps I may refer to an example which I have used elsewhere, and which I think that I must have borrowed unconsciously from the above-mentioned work of Lord Russell. If I make the statement, "There will be a war in which atomic and hydrogen bombs will be employed and which will blot out the whole human race" this statement cannot be verified (*i.e.* cannot be known whether it is true or false), because there would be nobody to verify it, were the prophecy to be fulfilled. It may be said, of course, that I am unjustifiably disregarding the possibility of there being intelligent beings on, say, Mars, who might be able to verify the statement; but it is quite unnecessary to introduce consideration of such beings; the statement is intelligible to us because we can conceive or imagine facts which would render it true or false. I should not myself call this verification, because, in order to imagine the facts, I have to introduce myself, surreptitiously, as a background observer, whereas a condition of the fulfilment of the prophecy is that no human being should be alive. However, if anyone wishes to count the conceiving or imagining of the facts which would render the statement true or false as "verifiability in the weak sense", I should not wish to quarrel with him. I should regard it as a matter of terminology.

2. I wish now to examine one or two statements in the light of the remarks I have just made.

(i) Suppose that A says, "There is an invisible and intangible football floating in the air exactly three feet above my head", and that he intends to affirm by this that the football is absolutely imperceptible.

(*a*) The meanings of words like "football", "floating", "air", and "head" are derived from experience. We know by experience what it means to say of something that it is a "football". Or, if we do not happen to have seen a football, it can be explained to us what a football is, provided that the explanation is given to us in terms of what we have experienced.

(*b*) This being so, A's assertion may appear at first hearing to be significant; it is not obviously nonsensical in the sense that "Bax, cax, bax" is nonsensical. We understand the words "football" etc.; and it may seem to us, therefore, that A has made a significant statement, the contradictory of which would also be significant. Because the words have meanings, the sentence seems to state something, something which could

also be denied. "Bax, cax, bax", however, states nothing; and because it states nothing, it is impossible to deny it.

(*c*) But, if I apply the test of asking whether I can conceive or imagine any facts which would render A's statement true or false, the answer must be, I think, that I cannot. Why not? Because the word "football" means something perceptible. The Concise Oxford Dictionary defines a football as a "large round or elliptical inflated ball"; and it is obviously nonsensical to say of an object of this kind, especially if one adds that it is made of leather, that it is absolutely imperceptible. If it is proper to say of something that it is a football, it cannot be proper to say of it that it is imperceptible by any of the senses. And if it is proper to say of anything that it is imperceptible, it cannot be a football. Therefore, since the phrase "an absolutely imperceptible football" is analogous to the phrase "a round square", I cannot conceive of any facts or circumstances which would make it true to say that there is an absolutely imperceptible football either floating in the air or existing anywhere else. Therefore A's assertion is nonsensical, though it is not nonsensical in exactly the same sense that "Bax, cax, bax" is nonsensical.

(ii) Suppose that B says: "In everything of which it is true to say that it is a human being, there is a spiritual soul."

(*a*) Is B's assertion nonsensical in the sense that "Bax, cax, bax" is nonsensical? If it were, this could only be because the phrase "spiritual soul" is a mere *flatus vocis*. If this were so, no explanation could be given of its meaning. But, if B says, "I think that every human being is capable of exercising certain activities, the existence and character of which can be known by experience; and I think that these activities must be attributed to something which does not fall into the class of those things of which it is proper to say that they are material; and that 'something' I call a 'spiritual soul'", he has given a meaning to the phrase "spiritual soul". I am not in the least concerned now with the validity or invalidity of B's inference: what I wish to point out is that, whether the inference is valid or invalid, some experiential data are relevant to the formation of the idea "spiritual soul", and that the idea is formed through reflection on the data of experience. I think, then, that the idea or concept of "spiritual soul" fulfils the requirements for intelligibility or meaningfulness which I postulated earlier in these notes. If this is the case, B's assertion is not nonsensical in the same sense that "Bax, cax, bax" is nonsensical.

(*b*) Is B's assertion nonsensical in the sense that A's statement about the football is nonsensical? At first hearing perhaps it

may be. For it might seem that if it is proper to say of anything that it is a "spiritual soul", it cannot be proper to speak of it at the same time as being "in" anything. But, when B asserts that *in* every human being there is a spiritual soul, he means that any given human being exercises certain activities, or can do so, which must be attributed to a spiritual soul, of which it is proper to say that it is the spiritual soul of that human being because it is the principle of activities exclusively associated with that human being. He does not mean that the soul is in the body in the same sense that the tea is in the pot, or that it is situated at the pineal gland. (If he is a Scholastic, he also means of course, that the spiritual soul exercises vital functions, the relation of which to the soul makes it proper to say, given the limitations of language, that the soul is "in" the body.)

(*c*) Can one imagine or conceive facts which would render B's assertion true or false, or at least which would tend to confirm or disconfirm it? One cannot, of course, imagine a spiritual soul; for anything imagined must be pictured as material, even if it is pictured as "very thin", like Anaxagoras' *Nous*. But I at least can conceive the possibility of there being certain experiencable human activities, which would reveal the existence of a spiritual soul, or from which one might infer the existence of a spiritual soul.

At the mention of "inference" in this connection I can well imagine a raising of eyebrows. But my main point in these notes is to suggest that, though the modern discussion of "meaning" is certainly valuable, and though it has made clearer certain acute difficulties which confront the metaphysician in his use of language, it has not, so far as metaphysics is concerned, revolutionized the situation since Kant's criticism of metaphysics in the way that it is sometimes supposed to have done. I wish to illustrate my point.

3. (i) Let us suppose that someone, C, makes the two following metaphysical statements: "There is a spiritual soul in man", and "Absolute being exists". His friend D, who accepts the principle of verifiability, asks him what facts would verify or falsify, confirm on disconfirm, his statements. C answers that, if there is a spiritual soul in man, it will be found that man exercises, or can exercise, certain activities which must be ascribed to a spiritual principle; and he cites as examples of these activities mathematical reasoning and the passing of moral judgments. He also affirms that, if absolute being exists, it will be found that contingent beings exist or that at least one contingent being exists. A discussion ensues between C and D. If C takes as

examples of " certain activities " mathematical reasoning and the passing of moral judgments, they will probably agree as to the fact that man is capable of mathematical reasoning and of passing moral judgments, even if there is some dispute as to the meaning of the words " man ", " capable of " and " moral judgments ". When they come to discuss the statement that at least one contingent being exists, they may or may not agree ; but they will be discussing a statement the truth of which, C would claim, is verifiable by reference to experience.

(ii) At this point D observes that, if C is offering the statement that at least one contingent being exists as an " observation-statement ", then, whether it is an observation-statement or not, he is equivalently saying that the statement that a contingent being exists can be logically derived from the statement that absolute being exists. C answers that he does not mean to imply this. What he means is this. Our ideas are formed in dependence on experience and through reflection on the data of experience. Accordingly, if he makes the statement that absolute being exists, this must, for psychological reasons (omitting all consideration of immediate intuition or of revelation) be due to his recognition of some aspect or feature of empirical reality, reflection on which leads him to make the statement. If, then, the statement is made that absolute being exists, one can, in a sense, " derive " the statement that at least one contingent being exists, not because one can logically deduce the latter statement from the former statement, but because the existence of absolute being could not be normally known or thought of unless the existence of contingent being were first recognised. Similarly, if we suppose that there is no direct immediate intuition of a spiritual soul, and if we leave revelation out of account, the statement that there is a spiritual soul in man would not, for psychological reasons, be made, unless there were a previous recognition of the existence of certain observable activities which the man who makes the statement counts as spiritual activities. One can, then, in a sense, " derive " the statement that man is capable of exercising activities of a certain kind from the statement that there is a spiritual soul in man ; but this does not mean that one can deduce logically from the statement that there is a spiritual soul in man the statement that every man exercises in fact certain activities. Nor does it signify that the statement that there is a spiritual soul in man is precisely equivalent to the statement that, for example, man is capable mathematical reasoning.

(iii) C having explained in what sense he thinks that his veri-

fiable statements can be "derived" from the metaphysical statements which he originally made, he and D continue to discuss these verifiable statements in the following form: "Man is capable of mathematical reasoning and of passing moral judgments", and "at least one contingent being exists". Let us suppose that C gives a definition of the meaning he attaches to the phrase "contingent being" which is acceptable to D, and that they finally agree on the truth of the statements that man is capable of mathematical reasoning and of passing moral judgments, and that at least one contingent being exists.

This measure of agreement having been attained, D goes on to say that he sees no reason whatsoever for concluding from these two statements respectively the statements that "there is a spiritual soul in man" and that "absolute being exists". The facts on which they have agreed are not such as to render true or false either the statement that there is a spiritual soul in man or that absolute being exists.

(iv) Leaving C and D to argue the validity of the inferences in question, I wish to give two syllogistic arguments, in order to show what I think C and D have been about, in the language of the syllogism, and in order to make clear my conclusion. The syllogisms, the validity of which I do not presuppose, as it is irrelevant to the point I want to make, are these.

(*a*) There is a spiritual soul in man if man is capable of exercising mathematical reasoning and of passing moral judgments:

But man is capable of mathematical reasoning and of passing moral judgments:

Therefore there is a spiritual soul in man.

(*b*) If at least one contingent being exists, absolute being exists:

But at least one contingent being exists:

Therefore absolute being exists.

(*a*) I supposed that C and D reached agreement as to the facts that man is capable of mathematical reasoning and of passing moral judgments, and that at least one contingent being exists. In other words, they reached agreement as to the truth of the minor premisses of the two syllogisms given above.

(*b*) We left C and D arguing about the validity of the existence of a spiritual soul from man's capability of mathematical reasoning and of passing moral judgments and the existence of absolute being from the existence of contingent being. In other words, we left them arguing about the truth of the major premisses of the two syllogisms given above.

(vi) From the foregoing I draw the following conclusions, using the language of the syllogism.

(*a*) When the logical positivist challenges the metaphysician to " derive " an " observation-statement " from his metaphysical statement, he is asking the metaphysician to provide the minor premiss which, given man's psychological make-up, is an indispensable condition of a valid metaphysical argument.

(*b*) When he challenges the metaphysician's inference, he is asking him to give a theoretical justification of an implied major premiss, which states an inference.

(*c*) It was Kant's conviction that inferences of this sort are not valid or theoretically justifiable. I submit, then, that Kant's problem, namely the problem of metaphysical argument, remains the fundamental problem for the metaphysician, and that the modern shifting of attention to the problem of " meaning " has not really superseded the older approach. I think that this conclusion is confirmed by what seems to me to be the fact that, when a metaphysician argues with a logical positivist, the discussion inevitably comes to turn round the question of inference or of " metaphysical argument ". In the case of a metaphysician who admits that all our factual knowledge is in some way empirically grounded, this is inevitable. Moreover, if there is a certain " loosening-up " or an inclination to a greater degree of toleration in logical positivist circles in regard to the meaning of meaning, and if this process continues, it will gradually become more apparent, I think, that the Kantian line of attack on metaphysics remains the fundamental line of attack and presents the fundamental problem for the metaphysician. The language in which the logical positivist expresses his attack on metaphysics may not be the language of Kant ; but the substance remains the same.

Conclusion

It may be said that all this is very trivial, on the ground that every philosopher nowadays must take the validity of Kantian criticism as a starting-point. But, apart from the fact that the statement that every philosopher must presuppose the validity of the Kantian criticism of metaphysics is not a self-evident proposition, the metaphysician cannot escape the necessity of metaphysical argument, even if he tries to conceal the use of such argument. It is of no real help to him to propound metaphysical theories simply as hypotheses and to say that he does not pretend to " prove " them. Unless a metaphysical theory accounts for some fact in or some feature of empirical reality, it can profitably be subjected to treatment with Ockham's razor. But, if it

accounts, even if only with probability, for some fact in or some feature of empirical reality, the metaphysician may justly be called upon to show that this is the case. This means that he will have to give a " metaphysical argument ", whether he supposes that the conclusion is established with probability or with certainty. If such argument is possible, well and good : if it is not possible, the principle of economy should be applied to metaphysical theories. It is not my purpose to discuss the question whether such argument is possible or not : my purpose has been to show that the problem of the validity of metaphysical argument remains the fundamental problem in regard to metaphysics.

Heythrop College.

INDIAN PHILOSOPHICAL CONGRESS.

The Indian Philosophical Congress will be celebrating its Silver Jubilee in its Twenty-fifth Session next December at Calcutta in the week preceding Christmas under the auspices of the Calcutta University. On this occasion, the Indian Philosophical Congress greets philosophers both in India and abroad ; and cordially invites philosophers from abroad, in particular, to attend and participate in its Silver Jubilee Session.

N. A. NIKAM, *Secretary.*

MIND ASSOCIATION

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NOTES

At the Annual Meeting of the Mind Association held at Bristol University in July, 1950, Professor C. C. J. Webb was elected as an Honorary Member of the Mind Association. Professor Webb was one of the foundation members of the Mind Association.

VI.—DISCUSSIONS

OSTENSIVE DEFINITION AND EMPIRICAL CERTAINTY

I WISH to reply to Mr. Rollins' critical discussion of my article "Indubitable Existential Statements" (MIND, July 1946), which appeared in MIND, October 1949, under the title "Are There Indubitable Existential Statements?" I have to say very little about that (substantial) portion of Mr. Rollins' critical note which consists in a clever but unnecessary refutation of a proposition I never held, *viz.* "the fact that the word 'red' has the significance it does, is (logically conclusive) evidence not merely that there *have* been red things, but is (logically conclusive) evidence indeed that there *are and will be* red things *as long as the word 'red' continues to be used with its present significance*" (*loc. cit.*, p. 526). I did argue that there is logically conclusive evidence for the proposition "red things exist" or, to put it in a more explicit though equivalent way, that the proposition "if 'red' means what it presently means, then it follows that there exist instances to which 'red' correctly applies" is true. But I explained in a footnote which must have escaped Mr Rollins' notice (MIND, July 1946, p. 236) that I was using "exist" in a *tenseless* sense, as is customary in logic though not in everyday uses of "exist". I clearly did not maintain, then, that the proposition "'red' is used in its conventional manner" logically entails the proposition "there exist *now* red things"; and *a fortiori* I did not maintain that the continued existence of red things could be logically inferred from the continuation of the present conventional use of "red".

This reply, then, confines itself to an examination of Mr. Rollins' arguments against the thesis I did put forth, *viz.* (to quote his own formulation) "the understood significance of 'red' logically implies the *past* existence of some red things". But first let me clarify this proposition. It is not intended to assert: (A) "'red' means *red*" logically implies "$(Ex)\,(Et)$ red (x, t)", but the far different proposition: (B) "'red' means *red* by ostensive definition" logically implies "$(Ex)\,(Et)$ red (x, t)" (the implicans of this entailment-statement will in the sequel be referred to as (*a*) and the implicate as (*b*)). (A) would be acceptable only if the proposition "'red' means *red* by ostensive definition, and not by verbal definition" were logically certifiable, which it surely is not. Now, let me offer (B) as an analysis of what I meant, in the article criticized by Mr. Rollins, by saying that an existential statement like "there exist red things" (in the tenseless sense of "exist") is *true by ostensive definition*. The crucial question is just what I would establish if I established (B), and specifically, just how the existence of existential statements true by ostensive definition would refute

the thesis, defended by the sceptics and Mr. Rollins (unless Mr. Rollins was just playing the devil's advocate in order to reveal the poverty of my arguments), that *there is no logically conclusive evidence for any empirical proposition.* To be sure, if one should define an empirical proposition as one for which there can be no logically conclusive evidence, or logically conclusive evidence as the kind of evidence there can be only for non-empirical propositions, the sceptical thesis is trivial and unworthy of discussion. But I shall, so to speak, adopt Mr. Rollins' rule of the game to the effect that scepticism is an arguable proposition, not a terminological proposal. Now, let us assume that what the sceptics mean by saying "there is logically conclusive evidence for sentence S, as interpreted to mean proposition *p*" is the following: given the semantic rules according to which S means *p*, the truth of *p* follows, either directly or indirectly by application of logical principles. If only we recognize ostensive definitions as a species of semantic rules (as surely we must), it follows that there is logically conclusive evidence for (*b*) if (B) is granted; just as you must grant that there is logically conclusive evidence for the proposition expressed by "all bachelors are unmarried" if the semantic rules which fix the interpretation of this sentence include the verbal definition "'bachelor' means 'unmarried man'". There is, indeed, justification for the feeling that a universe in which the proposition expressed by (*b*) were false, is possible. But such a universe could not contain the situation called "ostensive definition of 'red' by pointing at a red thing", and the proposition expressed by (*b*) relatively to this hypothetical universe would, therefore, be different from the proposition expressed by it relatively to the actual universe. In this respect, again, statements true by ostensive definition are analogous to statements true by verbal definition: a universe in which "some bachelors are married" expressed a true proposition is possible; only the proposition expressed by this sentence in the hypothetical universe with such (relatively to ours) unconventional semantic rules would be different from the proposition expressed by that sentence in our universe.

Now, if there is logically conclusively evidence for (*b*), then scepticism is refuted provided it is granted that (*b*) is an *empirical* statement. A negative definition of an empirical statement as a statement such that there is (or can be) no logically conclusive evidence either for it or for its contradictory, would be useless in the present context, since it would beg the very question at issue. Fortunately, I am not burdened with the task of giving a satisfactory positive definition of this widely used term. It will be sufficient to reveal a property which only empirical statements are conceded to have, although it surely is no defining property. But that property is simply the property of being an existential statement containing as predicate a term which is descriptive in the sense of determining a class which is neither logically universal nor logically null. If the sceptic does not want to admit that logically conclusive evidence could be produced for an empirical statement,

at least he would have to revise his notion of an empirical statement as a statement which " says something about the world ". And perhaps the kind of existential statements here under discussion make it apparent that the distinction between statements which " convey information about the world " and statements which " convey information only about the use of language " is less clear than is currently assumed.

So far I have only shown that (*b*) must be accepted as an empirical statement for which there is logically conclusive evidence, *if* (B) *is granted*. I proceed, now, to defend (B) against Mr. Rollins' arguments. Let me first simplify his argument as follows: the proposition " ' this is red ' has been true " would follow from the proposition " the conventional significance of ' this is red ' is learnt by ostensive definition " only if the further proposition were granted that " to have learnt ' this is red ' by ostensive definition implies ' this is red ' to have been true ".[1] But that implicative proposition (referred to as (*d*) on pp. 530-531) is the very proposition which Mr. Rollins, following the sceptics, rejects. Since this proposition is identical with my proposition (B), to establish (B) and to refute Mr. Rollins and the sceptics on this point, is one and the same task. Mr Rollins writes: " . . . against (*d*) he (*viz.* the sceptic) could bring the further objection that ostensive definition is not *logical* evidence for the truth of the sentence which it represents or certifies for us " (p. 531). And in support of this objection he writes:

> " In verbal definition, when the offered sentence is true by definition, it is guaranteed to be true solely by virtue of its form or its formal relation to other sentences. Its certification is exclusively verbal, exclusively formal, *logically conclusive*. But ostensive definition is different. Here the offered sentence is *not* being certified in the same formal way. The evidence which is now being specified as ideal is *not* verbal, not formal, not logical, but instead perceptual."

I find this entire passage frustratingly obscure since no indication is given just which sentence is the " sentence offered for certification " when (ostensive or verbal) definitions are given. Take the verbal definition " bachelor = unmarried man ". Is the sentence Mr. Rollins has in mind, (*a*) the definition itself, (*b*) the sentence " all bachelors are unmarried men " (or " a bachelor is an unmarried man ") which is said to be *true by* the definition or analytic, or (*c*) the sentence " Mr. X is a bachelor " which is inferred, with the help of the above definition, from the empirical sentence " Mr. X is unmarried "? Analogously, we have three possibilities in the case of ostensive definition: (*a*) the ostensive definition itself, *viz.* red = the colour of this, (*b*) the sentence " this is red " (or the existential sentence deducible from it, which I call " true by ostensive de-

[1] I am substituting the phrase " by ostensive definition " for his phrase " in application ".

finition ") or (*c*) the sentence " this is red " where " this " refers to some other particular than the ostensive standard, and which will be true only if the given particular resembles the ostensive standard in the relevant respect. Let us see now, whether we can discover any such asymmetry between the two cases as Mr. Rollins claims. We may safely strike out the first interpretation of his obscure utterance, for how could the definition itself be said to be true by definition, and what could possibly be meant by saying that a definition " certifies " itself ? The second possibility, then, is that Mr. Rollins claimed " a bachelor is an unmarried man " is certifiable *formally*, but not so " this (the ostensive standard) is red ". Undoubtedly he was using " formal certification " in such a way that you are said to certify a sentence formally if you establish it without the use of empirical premises. But this specification still leaves it undecided whether such a process involves reference only to syntactic rules or also to semantic rules. If the former was intended, the claim is untenable : using the corresponding verbal definition, I can deduce " a bachelor is an unmarried man " from the identity " a bachelor is a bachelor ", but if such a formal deduction is to establish the conclusion as *true* we must presuppose the semantic rule that predicates are used univocally, in the context of the deduction. If, however, semantic rules are admitted in the process of formal certification, then surely " this (the ostensive standard) is red " is likewise formally certifiable. Finally, it should be obvious that under interpretation (*c*) again there is perfect symmetry, since in either case the process of certification involves empirical premises.

Suppose, however, that Mr. Rollins and the sceptics accused me of confusing the physical language and the sense-data language, and maintained that while the proposition " there are red sense-data " is, indeed, indubitable by ostensive definition, the proposition " there are red things " could not similarly be established beyond the shadow of a (theoretical) doubt. This position would imply that in the ostensive definition " this is red ", " this " names a sense-datum and accordingly what is defined is a predicate of the sense-data language, not a predicate of the physical language. And if in calling " x is P " an ostensive definition of " P " we imply, as I should think we do, that there is no sense in questioning whether x is really P, the sceptics are indeed driven to the position, which strikes me as paradoxical, that no physical predicates are ostensively definable. One might think that if phenomenalism is valid, then it could be held without paradox that simple, qualitative predicates of the physical language are meaningful though not ostensively definable, since they would be verbally definable in terms of corresponding sense-data predicates, thus : x is red = there would, under standard conditions of visual perception (normal observer, suitably placed, specified optical conditions, etc.) occur red sense-data ; where " red " in the *definiens* is ostensively definable. Indeed, it seems logically possible that in looking at x, the object of ostensive definition, I see red, thus grasping the meaning of the sense-datum

predicate "red", but that other observers under similar conditions see a different colour; and if my perceptions are thus idiosyncratic, then, according to the phenomenalist translation, x simply would not *be* red. But let us analyze this process of ostensive definition of the sense-datum predicate "red" more closely. Which of the following explanations is A, whom we suppose to intend to communicate the meaning of "red_s" (the subscript "s" is used to indicate that the predicate belongs to the sense-datum language) to B, to give: (*a*) by "red_s" I mean the colour of the sense-data which *I* get when I look at x . . .; (*b*) by "red_s" I mean the colour of the sense-data which *you* will get in looking at x . . ., (*c*) by "red_s" I mean the colour of the sense-data which *one* gets in looking at x . . .? Surely (*a*) is inappropriate since according to it "red_s" is ostensively defined in terms of "I" and thus varies in meaning from speaker to speaker. In other words, the predicate thus defined would belong to a *solipsistic* language, but since the purpose of ostensive definition is to communicate meaning, it is nonsense to speak of ostensive definition with respect to such a language (indeed, it may be questioned whether it would be appropriate to speak of "language" in such a case). (*b*) may be eliminated by a perfectly symmetrical argument. (*c*) is the only remaining alternative that will insure a nonsolipsistic sense-datum language. But, by the phenomenalist assumption, "red_s is the colour of the sense-data which *one* gets in looking at x" (where the reference of "one" is, of course, more specifically an observer satisfying certain requirements) is logically equivalent to "x is red_p" (here the subscript locates the predicate in the physical language). Hence, if the meaning of "red_s" is ostensively defined with reference to x as the source of red sense-data, it follows that x is red_p. To question, in other words, whether x is red_p would be to question whether one gets red sense-data in looking at x, and since red sense-data are defined as the colour sense-data one gets in looking at x, this would be to question whether red sense-data are red sense-data.

In conclusion, I wish to reply to Mr. Rollins' accusation that I have been "misled by a superficial likeness between 'there are no certain empirical statements' and 'there are no red things'" (p. 533). Of all the things Mr. Rollins says in support of the contention that my argument from ostensive definition, which I first applied to the latter sentence, is *irrelevant* to the former sentence (*i.e.* scepticism), the only argument I clearly understand is the argument condensed into the statement "the notion of empirical certainty is verbally definable, while the notion of redness is not". Evidently he assumed that my argument from ostensive definition is applicable only to predicates which are not verbally definable. But this is a misunderstanding. All I need in order to prove the existential statement "there are A's" is the premise that "A" is ostensively definable; whether "A" is also verbally definable, is irrelevant. At least, then, Mr. Rollins would have a point only

if he could show that the notion of empirical certainty (*i.e.* non-analytic certainty) is *only* verbally definable. But while I would not dispute the possibility that a skilled philosopher might be able to produce such a verbal definition—Mr. Rollins surely has not produced it in the critical note under discussion—it seems to me fairly obvious that ordinary people do not have that skill and still make a meaningful use of the notion. And if so, they must have learnt to use it through ostensive definition, *i.e.* by being conditioned to apply " certain " to such propositions as Moore cited in his " Defence of Common Sense ". Indeed, I would claim that my argument from ostensive definition provides an explicit justification for Moore's method of refuting philosophical doubts in terms of " ordinary usage ". I am, therefore, highly surprised that Mr. Rollins should *both* accept, as he implies, the method of refuting scepticism practised by such a " philosopher of common sense " as Malcolm, *and* reject my argument from ostensive definition as inapplicable to such predicates as " known with certainty ". The fact that " nowhere in Malcolm's discussion there occurred any such expression as ' ostensive definition ' " is surely no good reason for denying that implicitly the argument from ostensive definition was nevertheless used.

ARTHUR PAP.

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PRAGMATIC PARADOXES

IN MIND of January this year, Mr. Cohen attempts to deal with the "Pragmatic Paradoxes" put forward by Professor O'Connor in July, 1948. It seems to me that both Mr. Cohen and Professor O'Connor have overlooked the real confusion in one of these paradoxes, at least.

Professor O'Connor gave as an example the statement "I remember nothing at all" which is not logically self-contradictory and not merely factually false; and although it could not conceivably be true because I must at least remember the proper use of the English sentence "I remember nothing at all" it is not like the statement "I am lying now", which raises puzzles by self-reference.

Mr. Cohen considers that the paradox alleged to be involved in the statement "I remember nothing at all" arises from an ambiguity of the word "statement". Thus, within the meaning of this word he distinguishes "utterance" from "proposition" in such a way that the same proposition can be uttered at different times, so that the proposition "I remember nothing at all" might conceivably be true if a record of it made by me were played at my funeral, because then I might truly be said not to remember the correct use of the English sentence "I remember nothing at all", or indeed anything else. (It should be noted that this post-mortem performance is necessary to Mr. Cohen's elucidation and that no other would serve.)

I shall not here dispute the necessity of making this distinction between "proposition" and "utterance" for some purposes, but I do want to question whether it is of any use in connexion with the statement "I remember nothing at all".

It seems to me that the egocentric particular "I" can only be used sensibly by a living person of himself.[1] When the gramophone record is played at my funeral whom or what does "I" denote? Normally "I" denotes the person speaking. Here the gramophone "utters" the proposition and yet "I" could not sensibly be said to denote the gramophone; at the most it could denote the person who made the record *at the time at which the record was made* and certainly not my corpse at the time at which the record was played. Possibly if "I" were regarded as a proper name irrespective of context or if the gramophone could point to my corpse there might be some reason for supposing it to denote my corpse but even here there are difficulties. It would be necessary for the "I" denoted to be the same as the "I" denoted by me when I made the record; and part of what "I" denotes when I use it of my living self may be held to be the very thing whose absence is now demanded—my remembering or my "consciousness" or at least

[1] Except in quotation, *e.g.* "He said, 'I remember nothing at all'"—a usage which is irrelevant here.

my ability to use or understand the English language. It is probably not sensible to say of my dead body either that it remembers something or that it remembers nothing : it has ceased to be the kind of thing that, as far as we can know by any normal means, could remember—or be denoted by " I ". On the other hand, as Mr. Cohen points out, if the gramophone were to utter the proposition " He (or that) remembers nothing at all ", even if it could be taken to be a sensible statement about my corpse, this would embody no paradox whether I were dead or alive.

Mr. Cohen's solution then appears to be unsatisfactory in two ways for (1) we should not think it sensible to use " I " to denote a corpse because the use of " I " is restricted to use by, and of, living persons, and (2) even if we could sensibly use " I " of a corpse the position is simply reversed, but not cleared up, for in this situation the proposition " I remember something " is not self-contradictory but could not be verified (although it might conceivably be true) and the proposition " I remember nothing at all " is not analytic but could not be falsified (although it might conceivably be false).

It seems to me that the " paradox " contained in the statement " I remember nothing at all " arises not from an ambiguity of the word " statement " but from an ambiguity, quite as familiar, of the word " remember ".

We can distinguish at least two senses of the word " remember ". I can remember (1) how to ride a bicycle or how to swim and (2) riding a bicycle through Brighton in 1939 or swimming in the sea at Bangor in 1949—and it is obvious that I use " remember " in two quite distinct senses. In the first sense I retain an acquired skill or habit, and it is in this sense that I remember how to construct English sentences ; in the second sense I recall, by means of images or otherwise, events from my past experience. Through this distinction lies the way out of the paradox which is, *prima facie*, involved in the statement " I remember nothing at all ". We can recast the statement to allow for this distinction so that it might read—

" I am still able to construct an English sentence correctly but I cannot recall my past experiences ".

Now the proposition expressed by the subordinate clause of this sentence can be verified or falsified and it is not falsified by its utterance. The proposition expressed by the main clause *is* verified by its utterance or by its entertainment—and the puzzle is one of self-reference like that of " I am lying now ".

On the other hand, the proposition " I am no longer able to construct an English sentence correctly " would be falsified by its utterance but is not comparable to the paradox thought to be embodied in " I remember nothing at all " by Professor O'Connor and Mr. Cohen. The paradox contained in the proposition " I am no longer able to construct an English sentence correctly " arises, like that contained in " I am lying now ", from self-reference. The proposition is falsified by the structure of the sentence which expresses it.

I think that this analysis of the proposition "I remember nothing at all" is consistent with what would normally be meant by anyone who uttered it.

Now this "pragmatic paradox" differs from the one involved in the statement "I am not speaking now" because it does not seem possible to remove this paradox by distinguishing two senses of "speaking". Perhaps Mr. Cohen's distinction is satisfactory here for the proposition "I am not speaking now" need not be false if merely entertained (unless we subscribe to the view that "entertaining" is equivalent to "sub-vocal speaking") so that the uttering of it falsifies it and, as Mr Cohen points out "there is nothing in principle to debar propositions from being such that they can be verified or falsified by their own utterance". Thus this proposition differs from "I am lying now" and the alleged paradox in "I remember nothing at all" for these would be falsified by their mere entertainment. If "entertaining" *is* taken as equivalent to "sub-vocal speaking" or "sub-vocal uttering" then the proposition "I am not speaking now" is peculiar in just the way that Professor O'Connor suggested—but we have no need to accept this view of "entertaining".

Now both paradoxes with which I have dealt differ from Professor O'Connor's "Class A Blackout" paradox, although he seems to think they have much in common. If they are different then the "Class A Blackout" paradox, though interesting, it is of no great concern, unless there are others like it which might arise in normal philosophical discussion. But it seems to me that any announcement of an intention is implicitly recognised to be conditional on the possibility of carrying out that intention. Even if I make a simple statement like "I will go to the cinema to-morrow" I mean, although I do not state, that I shall do so if I am not in any way prevented. Thus Professor O'Connor's statement, which can be abbreviated to read "A 'Class A Blackout' will be carried out next week" *ought* for completeness, to read "If the conditions of a 'Class A Blackout' can be realised, a 'Class A Blackout' will be carried out next week." Now this seems to raise no other difficulties than are raised by any conditional statement whose condition is unrealisable, like, for instance, "If I can live without air I will not breathe all day to-morrow". Of course, I might be able to live without air to-morrow but, similarly, men might cease next week to be able to realise that if the blackout had not occurred by Friday it must occur on Saturday, and then the condition would be realisable.[1] Any problems raised by these statements do not appear to be similar to those raised by the other statements with which I have dealt nor to be properly called "paradoxical".

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[1] Professor O'Connor stresses the point that no logical contradiction is involved. If that is so, his statement is not like the statement "To-morrow things equal to the same thing will not be equal to one another". There is no logical contradiction in men ceasing to be able to *see* a relation.

THE CAUSAL THEORY OF PERCEPTION

I SHOULD like to comment on Mr. A. C. Lloyd's argument that the refutation of the Causal Theory of perception is only valid when a sense-datum language is assumed. 'When Ayer, for example, calls the theory logically untenable all he means to do is to object to a causal argument from sense-data to things which are not sense-data.' That is, to expand this statement of the argument: if statements about physical objects or the function of the nervous system are based only on sense-datum statements then all that can be said in this way is that certain concatenations of sense-data cause certain other concatenations. To speak of something that is not a sense-datum causing a sense-datum is meaningless, indeed impossible in this language. This argument involves the statement of the causal theory of perception being in a language whose sentences are reducible to sentences about sense-data.

Lloyd's thesis is that a sense-datum language is not logically necessary and that all that is necessary is the specification, in a particular language, of those statements which are to be correctors. One standard that he gives for making this choice of correctors is 'suitability to modern scientific method'. This choice of correctors amounts to a choice of language; unfortunately it also has the effect of ossifying scientific method.

The refutation of the causal theory of perception has been given in a language where the correctors are sense-datum statements. Suppose we now choose our correctors differently and take the statements of physiology as correctors; that is we consider such statements as incorrigible by other statements and, consequently, as logically independent of other statements. The statements of sense perception, however, we will suppose corrigible, that is based on other statements including those of physiology. But if the sense perception statements are based on those of physiology, then, quite parallel with the previous refutation, there follows a refutation of the causal theory of perception. For all that can be said in this language is that certain physiological events cause other physiological events.

These 'refutations' of the causal theory of perception amount to no more than showing that, once the correctors have been chosen in a certain way, then the theory is no longer statable in that language.

Suppose, then, that we attempt to construct a language in which the theory will be statable. To do this we must choose our correctors so that both the antecedent and the consequent of the causal law will have independent meanings. The correctors must be chosen so that, whether the statements of physiology or of sense perception are all correctors or not, they are based on independent

sets of correctors. No sense perception statement must be corrected by a corrector which also corrects a physiological statement; given this choice of correctors for our language we can state a causal law about physiological events causing perceptions and not mean merely that physiological events cause physiological events or perceptions cause perceptions.

Not only can the causal theory be stated in this language; but it is non-contradictory and verifiable, providing that we concede that physiological statements are known by some other means than perception.

If the term 'sense-perception' was limited to auditory experiences then it is easy to imagine physiological statements verified independently of auditory experiences and this is an example of a non-contradictory but limited form of the causal theory.

But if sense perception is tacitly supposed to be the only source of knowledge, or at least the only source relevant to physiology and physical objects, then the statement of the causal theory must be completed by the addition, 'only statements of sense perception are correctors'. And if this supposition is not made then we have not got an explanation of perception in terms of what is not perceived, we have not got the causal theory of perception. Then, if the causal theory is stated in the language which provides that physiological and perceptual statements are corrected independently, we must add to the rules specifying the correctors another rule in contradiction with some of them.

So the causal theory of perception cannot be stated in any of the three types of language considered and these three types are exhaustive. The reason is that the statement of the causal theory, if it is to mean what it has been thought to mean, must be made in a language in which physiological statements are both corrected and uncorrected, both dependent on sense perception statements and independent of them.

This argument does not require that a statement should say of itself that it is a corrector; it only requires that, for the meaning of a statement to be complete, the correctors for the language in which it is made be given. The attempts to state the causal theory in different languages exemplifies this. If it is true in general then the choice of correctors determines not only the language we use, but also what we say.

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'FALLACIES IN MORAL PHILOSOPHY'

A Reply to Mr. Baier.

1. In a criticism in MIND of April 1950 of a paper of mine entitled 'Fallacies in Moral Philosophy' (MIND, October 1949), Mr. Baier argues (*a*) that the phrase 'sentences expressing moral praise and blame' is strictly meaningless: 'sentences expressing approval or disapproval' might be substituted for it, but that (*b*) when this substitution is made and the confusion cleared up, the general thesis of the article is seen to be groundless. As regards (*a*) I agree that 'expression of praise' is a loose and strictly impermissible phrase, since no use can be given to 'unexpressed praise'. A moral appraisal of, or verdict on, someone's conduct may express approval, admiration, indignation, remorse, and a variety of other attitudes or feelings; and a moral verdict may be either a sincere or insincere expression of the actual attitude and feelings of the moral censor. But as regards (*b*), it seems to me that Mr. Baier's further deductions are vitiated by a confusion which is even more interesting and important in its consequences than that which he corrects; and he thereby provides the means of making clearer the central issue of the use of moral terms.

The confusion (pp. 226 *et seq*) is between an attitude or opinion expressed by a sentence and what the sentence itself says and means; it is one thing to say of a sentence that it expresses a certain attitude of the speaker's and a different thing to say that it states the speaker's attitude. Many of our utterances, both moral judgments and others, are normally taken to be sincere or insincere *expressions* of our feelings, attitudes and opinions without their being taken as (true or false) autobiographical *statements about* feelings, attitudes and opinions. 'You acted unscrupulously' may be normally taken as an expression of the speaker's feeling of disapproval, but is certainly not equivalent to, and does not entail, the statement that the speaker disapproves; on the other hand, 'I disapprove of your action', like 'I am anxious about . . .' or 'I am delighted with . . . (p. 226), is a direct statement or report of my attitude and not merely an utterance which among other things is taken to express my attitude. It is surely necessary always to preserve this distinction in discussing moral terms; for the fact that some moral judgments are normally taken as (among other things) expressions of the speaker's approval or disapproval has led some philosophers to represent this as the *sole* function of all moral judgments; an analogous fallacy would be to infer from the fact that a promise, if sincere, expresses an intention to the conclusion that promises are no more than expressions of intention. About moral judgments I had maintained that they are not properly classified as statements of any kind, autobiographical

or otherwise, in the sense that (*a*) they are not in normal usage characterised as either true or false, and (*b*) that they are not normally taken to describe facts, but to prescribe or recommend policies of action. The last part of Mr. Baier's argument (pp. 228-9) shows by its misunderstandings that I had failed to make clear this central distinction between a sentence used descriptively and a sentence used prescriptively; but he cites an example (p. 228) which is to the point.

Referring to a plan to break the currency regulations, the question is asked, 'Do you approve of this sort of thing? Is it right?' (p. 228). It is to be noted that 'Do you approve of . . . ?' and 'Is it right to . . . ?' are often used interchangeably, just as 'Do you think it will rain?' and 'Will it rain?' are often used interchangeably: but we must not on this account conclude that 'It is right' means what is meant by 'I approve', any more than we can conclude that 'It will rain' means what is meant by 'I think it will rain'. Suppose that you believe that, in answering your question as a whole, I have for some reason chosen to conceal my real attitude from you, and that I am being dishonest in saying that I approve of you breaking the currency regulations: you can then say—'You said you approve, but you are lying: you really disapprove'. In being accused of lying I am being accused of deliberately making a *false statement*, of deliberately *mis-describing* my real attitude (not simply of refusing to disclose my attitude). But contrast the analogous possibilities of deceit in respect of the second part of the question only: 'Is it right?' My point is that no possible answer to it, however insincere as an expression of my feelings or attitude, would in any circumstances be called a lie; this is a plain fact of English usage. Suppose that for some reason I wish to mislead you into doing what I in fact consider to be wrong and to this end tell you that it is right to break the currency regulations: you might then say—'You have not expressed your real attitude or opinion: you do not really approve or consider it right: You are not sincere in what you say'. But you could not therefore say that I have lied, just because I have so far made no statement and therefore could not have said anything false: you might even consider that, although my judgment did not in fact sincerely express my own attitude or opinion, it was nevertheless as a judgment morally right. Of course if I pronounce a moral judgment, it is generally assumed that this judgment expresses my attitude or opinion on the moral issue, just as if I make a statement of fact it is generally assumed that this statement expresses my belief; but the judgment no more *states* that I approve than the statement states that I believe. Nor is any knowledge of my actual emotional state, attitude or opinion relevant to the understanding of the judgment or to the acceptance or rejection of it as in itself right or wrong.

This example enables the intended distinction between a sentence used descriptively and a sentence used prescriptively to be rather

more precisely marked. Any sentence so used that either it or its negation might, at least in some normal circumstances of its use, be called a lie is a sentence used descriptively in the required sense. Sentences of the form ' So-and-so ought to be, or to have been, done ' would never be described as lies, however disingenuous they may be as expressions of the speaker's attitude. This is connected with the fact that to distinguish in ordinary usage an utterance, or part of an utterance, as being a moral judgment is always therein to *contrast* it with a statement of fact: consider a case in which it is doubtful whether a sentence is intended as a statement of fact or as a moral judgment—*e.g.* ' He is a very vicious man ': in order to make clear that I am using this sentence simply to *describe* how he in fact behaves, I might add ' But I do not intend a moral judgment by this ', which would be the same as to say ' In using the word ' vicious ', I am not prescribing how he ought not to behave, but simply *stating* that he in fact behaves in the way ordinarily called ' vicious '.' I am here contrasting the statement with the prescription, the declarative with the imperative. It is of course very easy to find multitudes of sentences which could, as normally used, be interpreted as partly descriptive and partly prescriptive and as on the border-line between pure statement of fact and pure moral injunction; it is notorious that, whether deliberately or not, we are often prescribing what ought to have been done when we are also describing what actually happened, and conversely: it is left to the vigilance of our audience to separate the two elements in our discourse. But Mr. Baier, in suggesting that the distinction between a true or false statement (descriptive) and a moral judgment (prescriptive) is inapplicable, strangely selects (p. 229) two instances of what are clearly pure statements of fact, that is, sentences which, at least when used in the contexts supplied, we should unhesitatingly qualify as either true or false, and as either in accordance with the facts or not in accordance with the facts. They are utterances which are obviously either plain lies or honest attempts to supply factual information. (1) To say that I see three moving objects approach at a great distance, but cannot further describe them, is to *describe* what I see, even if the description is incomplete, in the only sense of ' description ' which is intended, namely, that it is to make a statement about what I see which is either true or false. (2) Someone says ' You must walk home ', and it is claimed that this statement is true, when the person addressed has missed the last 'bus and has no money for a taxi; there could be no clearer case of a brutal statement of fact—just the kind of statement which serves to make us ' face the facts', as we should say. I think that Mr. Baier only supposes that such a statement so used ' is surely prescriptive in an ordinary sense ' because it contains the word ' must '; but the context which he supplies shows that this is the familiar use of ' must ' which would allow as a paraphrase ' You have no alternative but to . . .';

and *that* you have no alternative possibility from which to choose is here an experimentally ascertainable fact about the prevailing conditions of human transport. Admittedly 'You must walk home' is a sentence which might in many contexts be used with a wholly imperative force as a prescription or injunction: it would be clear that it was in fact being so used if, for example, the reason given in support of the pronouncement was 'Walking will clear your head', which would be quoted as a *reason for doing* something and not as *evidence that* some statement is true; under these conditions the utterance would not be requiring you to face the facts, but to adopt a policy of action.

3. I had argued that both in choosing the right courses of action for themselves, and also in appraising the past or projected conduct of others, we are deciding, not whether some statement or description is true, but whether some decision or recommendation is right; secondly, that this distinguishing feature of any moral argument and its conclusion may be masked by considering primarily the use of moral terms as epithets of praise and blame; for, having failed to find 'non-natural qualities' which such adjectives (*e.g.* 'good') 'stand for', we may suppose that they can be used *only* or primarily as expressions of the spectator's feelings. I tried to show that this dilemma fails, and Mr. Baier, so far from re-instating it, has brought to light one of the many confusions with which it is connected—the confusion between what an utterance is normally taken to disclose about the speaker (his attitude, belief, intention, etc.) and what the sentence itself is used to convey (moral judgment, statement of fact, promise, etc.).

STUART HAMPSHIRE.

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THE EXISTENCE OF GOD

MR. DAVID COX (" The Significance of Christianity ", MIND, April, 1950) tries to restate two " Christian doctrines " in a way in which they shall be verifiable, in principle, "by human experience ". These two restatements he offers as a sample of what might be done to reconcile theological doctrine with the verification principle. He chooses to demonstrate on " God exists " and " God created the world from nothing ".

What I want here to show is that Mr. Cox's restatement of the first proposition neither represents it adequately nor is verifiable. I discuss only the first restatement because the second is made to depend on the first and falls with it. Mr Cox is very disarming. He is quite prepared to admit that there may be something wrong with his restatement; but suggests that someone else should do better. I hope to show both what *is* wrong with his restatement of " God exists " and also that no-one *could* do better—along *these* lines.

Mr. Cox's restatement of " God exists " is " Some men and women have had, and all may have, experiences called ' meeting God ' ".

1. " God exists " is not adequately translated by this statement. Something or somebody could exist without anyone's ever having " met " it or him (more later about " meeting "), and even without its being possible that anyone *could* ever meet it or him. Lots of things existed before men existed. Probably lots of things will exist after men have ceased to exist. And there is nothing wrong with saying that on a planet attached to a star in a galaxy untold distances beyond our Galaxy a single wonderful being came into existence Melchizedek-ly at the moment I began to write this sentence, and will cease to exist at the moment I make the coming semi-colon, leaving no trace of himself whatever; so that no matter if a magnificent space-ship were built *now*, and set off through space *now*, with Mr. Cox in it, it would arrive too late for Mr. Cox to meet the wonderful being. We just do not *mean* by " X exists " " some men and women have had, and all may have, the experience of meeting X ". (But, of course, these two sentences are related. The second entails the first, though not *vice versa*.)

But does Mr. Cox perhaps mean that *God*'s existence, unlike that of other things and persons, *does* somehow depend on at least the possibility of men and women's meeting Him? Perhaps he means this. But then did God not exist at all before men existed? Or, if He existed, was He not truly God before He created men and women? This is a hard saying. (Or are angels " men and women ", and did angels exist from the beginning?)

Perhaps Mr. Cox's disarmingness is intended to get him out of answering difficulties like these I have raised. He writes as if he would not greatly care if it were objected that his restatement

restates only part of what is meant by the original proposition (p. 215). Perhaps his own criterion of an adequate translation would be : preservation of essential content (p. 213) and the making of this explicit ; and this evidently has something to do with " safeguarding Christian experiences ". But by " essential " content Mr. Cox seems to mean verifiable content (p. 215). (It is its verifiability that is for him the thing to be most insisted on about the basic " Christian experience " of " meeting God ".) This looks almost analytic. " God exists " is seen to be verifiable if we restate it so as to make its essential content explicit. What is its essential content ? That part of the " meaning " of " God exists " that is verifiable.

But, anyway, it *isn't* verifiable, as we are now to see.

2. Mr. Cox himself says (p. 217) : " Those who wish to retain doctrines which cannot be stated in a verifiable form have to explain in what sense they ' understand ' such doctrines ". But what is to be understood by Mr. Cox's restatement ? In particular, how is " meeting " used in it (cf. " encountering God " and " knowing God " on p. 215) ? I know what it would be like to meet Mr. Cox, but not what it would be like to meet God. In a way I do see what Mr. Cox wants to say ; but I don't think he ought to have said " meet ". We don't use " meet " except where the senses are involved. We must *see* someone when we meet him (or if we are blind must hear him speak to us and feel his hand shake ours). In general, if we are not blind, sight is essential and no other sense will do. Take introducing and being introduced. If two people stand back-to-back and are introduced to each other by a third person, and each says " How do you do ", but neither looks round at the other, have they " met " ? I think it is doubtful whether we would say they had. If two people have only spoken on the telephone have they met ? No, for this is just the sort of situation where we say, " Well, I've never actually *met* him, but we once discussed something on the 'phone ", etc. And this doesn't apply only to " meet " in the sense of " be introduced to ". If we " meet someone in the street " whom we know already this involves *seeing* him, and perhaps stopping to talk to him (at least acknowledging him by nodding, smiling, or scowling, etc.—otherwise we say we have merely " seen " him in the street, or " passed " him in the street, and not that we have " met " him in the street). Mr. Cox says that meeting God is, or is like, meeting a person. But in what way like ? Do we *see* God, let alone nod to Him when we pass in the street ? Surely not. But this is how we use " meet ". Until Mr. Cox says what the likenesses and differences are between *his* use of " meet " and its common use, his phrase " meeting God " is, for me at least, not meaningful, and so his restatement is not verifiable.

Mr. Cox wants a kind of verification that is not verification by " sense experience ". The " experience of meeting God ", he would

say, is a "human experience" but not a "sense experience". He says (p. 216) that meeting God is "not usually marked by the sense-experiences which we commonly associate with meeting a person". This is surely a very inverted-comma'd kind of meeting. It is misleading to use "meet" here, for "meet" is so closely tied to sense experience. It is incongruous to use "meet" and yet exclude sense experience (especially sight). That is one reason why we smile when we read in anthologies of comic verse :

> "As I was going up the stair
> I met a man who wasn't there.
> He wasn't there again today—
> I wish to God he'd go away!"

But if not "meet" what else ? Mr. Cox is in a dilemma that anyone else would be in who tried to do what he has tried to do. If he wants a restatement of "God exists" that shall be verifiable he is bound to use words like "meet". But no such word could satisfy him (I leave him to try others for himself—like his own suggestions of "encounter" and "know"). The trouble is that statements using words like "meet" are all verifiable, but only in the way Mr. Cox does not want, *i.e.* they are verifiable by *sense* experience. Either he must take this kind of verification, or give up using words like "meet". But I don't see how he *can* give up using words like "meet", if he also wants to speak of God as a *person* (or "like" a person—*sufficiently* like) ; for then words like "meet" and no others are the words he must have.

3. Another point about verification. I wonder whether Mr. Cox has done what he intended to do. I think he has in mind the view that "God exists" is itself verifiable, and is verifiable *because* "some men and women have had, and all may have, experiences called 'meeting God'". But the view that he in fact puts forward is not that the situation described by this second proposition is the verification of the first proposition, but that the second proposition is a restatement (in verifiable form) *of* the first, and that *it* (the second proposition) is what is *to be* verified. But, at best, to verify this second proposition would be only a second-hand kind of verification of "God exists". (Roughly, we would know that God exists not by meeting Him but by meeting someone who has met Him.) And things are worse even than this. Take the part of the restatement that runs : "Some men and women *have* had experiences called, etc.". What would it be to verify this ? By asking someone who was present and saw them meeting God ? But no-one could see them, for sense experience is ruled out. I imagine Mr. Cox would agree with the view that, to put it in his terminology, "the experience of meeting God" is a *private* thing. He himself says—p. 212—reporting, or paraphrasing, Professor Ayer : "There *may* be human experiences which can only be known by those who enjoy them." And "meeting God" may well be such a case. Of course,

" experience " is anyway an unfortunate word ; for we often use " experience " *meaning* by it something quite private. I am not sure whether this is the kind of privacy that the experience of meeting God is supposed to have.

But, it may be said, suppose the verifier is himself one of the men and women who " have had the experience, etc." : what then ? But surely one does not " verify " one's own experiences (or, better, *that* one has oneself had certain experiences) in the " private " sense of " experience " ; one just *has* them, and either remembers having had them or forgets. But I shall not press this : perhaps I am exploiting the ambiguity of " experience ".

Now take the other part of the restatement—the part that runs : " All *may* have experiences, etc ". This is surely not verifiable. I can understand what it would be to " verify " that something *has* happened or *is* happening, but not what it would be to " verify " that something *may* happen. Surely one " verifies " actualities, not possibilities (except, of course, in the sense in which one " verifies " someone's statistical calculations about the probability of an average so-and-so being such-and-such).

4. Mr. Cox's difficulties arise because he is trying to do what cannot be done. And I confess I do not see why he wants to do it. Theological propositions have their own meaning. I think it is more valuable to examine them and find out what their meaning is, than to work on them to make them fit a philosophical view that divides all propositions up according to a rigid principle. Theology needs a great deal of clarification. It is a subject-matter to which contemporary techniques in philosophy have not yet been applied. In what follows I offer a few remarks (there is no space in a short Note to give details) of what results we may get from applying such techniques to " God exists ". My interest in this proposition is not in pulling it about to make it verifiable, but in the preliminary business of leaving it alone for a while and looking at what sort of proposition it is.

In ordinary life we usually make existential statements only about (and ask existential questions only about) things that we know or think *don't* exist. We say " Fairies exist (don't exist) ", " Ghosts exist (don't exist) ", " Unicorns exist (don't exist) " ; or we ask " Do ghosts, etc. exist ? ". But we don't say (but see exception below) " Chairs exist ", " Tables exist " ; or ask " Do chairs exist ?". We are quite happy with talk about chairs and tables, but talk about their *existence* worries us, because it seems to be putting them into the class of things that we know or think don't exist, or anyway into the class of things of whose members it *makes sense* to say either that they exist or that they don't exist. We are inclined to feel that if anything exists chairs exist ; for chairs, and things like chairs, are precisely what *do* exist : only we do not *say* this, for it sounds odd; as if by saying it we are admitting that it is capable of being doubted. Children, to whom unreal things are sometimes as familiar as apples

and chairs and tables, can be badly upset by being told that " there aren't really any fairies " ; as upset as we should be if told—and convinced—that there are no chairs and tables. The statement " God exists ", because sometimes made and significant-sounding—as " ghosts exist " is significant-sounding—seems somehow to carry the suggestion that God does *not* exist, or *may* not exist, or is anyway the sort of thing or being talk about whose existence " makes sense " as talk about the existence of chairs and tables does not. Does God then belong to the fairy-world or ghost-world and not to the chair-world ? It seems so.

This distinction that I am drawing between the fairy-world and the chair-world is a pretty sharp one. Naturally, when one draws sharp distinctions one expects border-line cases to pop up suddenly and confront one. Here, the border-line case is exemplified by " electrons exist ". And this, as we can see on looking at it, is a border-line case because we are not quite sure how to use " electron ". (Is an electron something " really out there ", or only a concept worked with in physical calculations ?) Electron is a new concept, not yet legislated for. This, of course, is typical of border-line cases. There is no need to assign electrons to *either* world until we are more sure what we *mean* by " electron ". Another interesting case is that exemplified by " moas exist " (the moa is a very large New Zealand bird now extinct), said by someone who means " moas *still* exist " or " there still are some moas in the unexplored mountain country of South Westland ". This kind of case (like " another planet exists on which there is life like ours ") belongs to the chair-world, and someone saying something like this is saying something empirically testable. It is an interesting border-line case because the fact that " exists " tacked on to, say, " moas " is significant-sounding, gives it in one way a likeness to " fairies exist " rather than to " chairs exist " ; though we do also want to say that moas belong to the chair-world rather than to the fairy-world. Of course, there are differences between God and fairies—notably that the existence of the first is maintained much more vehemently than the existence of the second ; but all I want to do here is to make the general point as strongly as I can—ignoring qualifications—that the significance of " God exists " suggests that God is the same sort of *thing* as fairies and unicorns, and not the same sort of *thing* as chairs and tables. We say something " exists " when it is in another place (or " place ") from that where we are, or is unfamiliar to us (unexperienced by us) ; and the things that belong in these classes are pre-eminently things that *don't* exist (like fairies and unicorns).

Now suppose someone *were* to ask (though only a person spoiled by philosophy would ask) " Do chairs exist ? " We should think it an odd question, but if we saw that the questioner was serious we should perhaps, by way of answering him, point out a couple of chairs and say : " That's a chair, and so is that ; look at them and feel them, and you'll find that they certainly exist. So that at

least two chairs exist. Does that prove to you that chairs exist?". If he said he was not satisfied we could discuss with him further and try to find out what more he could possibly want, and whether he was really wanting anything that could be given. But it is not possible in this way to point to God and say: "That's God; look at Him and feel Him, and you'll see that He certainly exists". A Moorean answer will not do here. There isn't any empirical answer to the question. This, as I pointed out, we recognise in the fact of our talking in the natural way we do about "the existence of God". The things whose existence it makes sense to talk about are, in that way, different from the things whose existence it does not make sense, in general, to talk about. (The "existence" of the things whose existence it sounds odd to talk about is our *standard* for the use of "exists"; and this is just *why* it sounds odd to *talk* about their existence.)

We *may* sometimes want to say "Chairs exist", but only, I think, as a way of pointing out how "exist" is used. If someone asked "What does 'exist' mean?" we might answer: "Well, chairs exist and ghosts don't". In this use we should not think it strange to couple "chairs" and "exist", because we were not ourselves *saying* that chairs exist, but using the odd phrase "chairs exist" as a way of helping to point out the use of "exist".

But does God perhaps have a special "kind" of existence, like Meinongian and Russellian subsistence? This is not Mr. Cox's view, though it is a view often held. The interest of Mr. Cox's position is, indeed, in his not wanting to say this. The familiar view is: God exists, but He has a special "kind" of existence. This is to cut the string binding God to "ordinary experience" at the beginning, and, provided we are willing to agree to this special kind of existence, it kills our questions. God is just *different*, and so our "experience" of Him must be different from our "experience" of things (or beings) that exist in the "ordinary" way, like chairs and tables and Mr. Attlee. But Mr. Cox tries the novelty of cutting the string further away. He wants to say: God exists in the "ordinary" way (like Mr. Attlee), but meeting Him is a different "kind" of *meeting*. He might have cut it still further away and said: God exists in the ordinary way, and we meet Him in the ordinary way, but the sense experiences we have in meeting Him are a different "kind" of *sense experience*. The further away you cut the string the more words you must use in special "senses".

It is an uneasy half-way position that Mr. Cox is trying to balance in. His attempt to have it both ways is interesting. But I do not think it will do.

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BERKELEY'S *PHILOSOPHICAL COMMENTARIES*

To The Editor of "Mind"

Sir,

Professor Aaron's kindly review of my *Life* of Berkeley contains a plea for a return to the former name of Berkeley's two notebooks. That name is most misleading; it was bestowed in complete ignorance of a fact vital to the understanding of their contents and to any intelligent use of the work. The notebooks are *not* a Commonplace Book, and they are *in the main* Berkeley's commentaries upon his branching argument for immaterialism. In the long-term interests of Berkeleian scholarship I feel bound, therefore, to oppose Professor Aaron's suggestion.

The two notebooks have been bound together in the wrong order, and until the original order was restored, they could not be understood, or used intelligently. The entries must be read in the order in which Berkeley wrote them, not in the order in which Rose bound them; for Berkeley changed his mind on essential doctrines during the year in which he wrote these entries. Some of the later entries flatly contradict earlier entries, and it becomes of primary importance to know which are earlier and which are later. While Berkeley was filling these notebooks and writing these pungent comments on his authorities and on his own earlier views ("Malbranch, Locke & my first arguings", No. 265), his thought undoubtedly developed; but towards the end of the second notebook, (say from entry No. 800 onward) he reached his final philosophy of the external world, the doctrine of the *Principles*, from which he never varied subsequently. (In writing to Johnson twenty years later, he categorically asserts that he believes his early philosophy to be true.)

Professor A. C. Fraser, who found the notebooks, took them *as he found them;* he never knew that they had been bound in the wrong order; naturally he could not make head or tail of them; he thought that they were scrap-books of odd jottings made during a period of three or four years. In despair he christened them in his *editio princeps* (1871), *Commonplace Book of occasional metaphysical thoughts.*

T. Lorenz found the lost key, *i.e.* the binders' reversal of the true order. Dr. G. A. Johnston and I have, independently, used that key, and now the full truth about these notebooks has been pretty well ascertained. My *editio diplomatica* (1944) gives the text as Berkeley wrote it, and by reason of its completeness, fidelity to the manuscript and to the original structure of the composition and to the order of the entries, it is virtually a new document, demanding a new title. Fraser was misled all along the line; he was wrong about the dates, the structure, the order of entries, and the purpose of the composition. He was not to blame; it was just his bad luck; but he was wrong; his text is wrong; his title is wrong. After ten years study of the contents of the manuscript, I simply couldn't have placed on my title page what he placed on his. The change I made was not wanton, hasty, or unnecessary. I weighed carefully the *pros* and *cons*, and I took advice. The change of name had to be, if ever these notebooks are to take due rank as a sustained study in Berkeley's complex argument for immaterialism. To revert to the bad, old name would be to revert to the bad, old scrap-book theory.

Yours etc.,

A. A. Luce.

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A NOTE ON ARISTOTLE.

CATEGORIES 6a 15.

In categories 6a 11 Aristotle says that though it is a characteristic of quantities that they cannot have opposites, it looks as if they could in the case of spatial measurements. This leads him to make a general remark on the notion of opposition, namely that when people talk of opposites they are using a spatial metaphor ; that they mean by " opposites " those things which, in the same class, are separated by *the greatest possible distance* from each other. There are two things to notice here. First that Aristotle aims to distinguish, at least roughly, between kinds of terms, by asking whether or not they have opposites. Secondly, that, while he talks about a spatial metaphor, his only attempt to elucidate this metaphor is by translating it into another spatial metaphor, that of " greatest distance between ".

It is clear that, on the first point, Aristotle says nothing definite enough to be very useful. On the second point, his comment does not help to establish precisely what we mean when we say that x is the opposite of y, although it is obviously right to point to the spatial origin of the expression. It would be better, I think, first to divide the spatial, non-metaphorical, uses of " opposite " into two groups : (*a*) Those uses which do not imply movement, *e.g.* " opposite sides of the road ", and (*b*) those uses which do imply movements or forces ; and these may perhaps be called the " directional " uses. It is clear that we can say that left is the opposite of right, over of under, North of South etc. by thinking of either (*a*) or (*b*), depending on whether we are thinking about positions or directions. But if any action, such as giving, is said to have an opposite (*e.g.* taking away), then it is from (*b*), the directional use, that such metaphorical opposition can be derived. In such cases we *do* use a spatial metaphor, but " greatest distance between " is not any sort of explanation of what we mean. It is however, the non-spatial uses derived from (*a*) that are of greater interest. When we say that x is spatially opposite to y we do not normally mean that x is as far as *possible* away from y. One side of the road is probably much nearer the other than the Equator or the North Pole is. One end of a stick may be opposite to the other though only an inch away. " Opposite " is equivalent to " furthest away " only where " furthest away " means " the furthest you can go without leaving the same road " (" going off the end of the same stick " etc.), That is to say, it is only to limited areas of space (to speak very roughly) that the notion of non-directional spatial opposition applies.

It is the metaphorical derivative of this use of " opposite " which needs to be further elucidated. Having ruled out the case of direc-

tional opposition and its metaphorical derivatives, it will perhaps be safe to say that we are concerned only with the opposition of *qualities* to one another. I admit that there are great difficulties in the way of saying this, for it is not at all clear whether the relation "opposite of" is properly a relation between things in the world (as "spatially opposite" is) or between verbal expressions (as *e.g.* "contradictory" is). We want to say that white is the opposite of black, not "white" of "black". On the other hand "too much" is the opposite of "too little", and we can assert this without knowing what quantities of what stuff are in question. But in spite of such difficulties I shall at any rate confine myself to talking about the opposition of qualities to one another. The difficult question is, what qualities have opposites, and why do some qualities have them, and others not? I admit at once that there may be no satisfactory answer to this question. The most we can hope for is to find something in common between cases of opposition: and the clue to *what* is in common is to be found in the limitation already pointed out in the non-metaphorical spatial use ((*a*) above). We said that it was only to limited areas of space that this notion of opposition applied. And so, it is only between qualities which can be thought of as part of a limited and definite range of qualities that the metaphorical relation of opposition can hold. It is certainly true that there are many limited and definite ranges or series we can think of where the first of the series is not said to be the opposite of the last, *e.g.* the days of the week form a series, but Sunday is not the opposite of Monday: or a grocer might have a complete list of things in his shop, but the first item on the list would not be the opposite of the last. Mere position on the list is felt to be irrelevant to deciding whether any item is in opposition to any other. If cornflour were said to be the opposite of oatmeal, it would have to be in virtue of some characteristic in each. The notion of opposition, in fact, seems to apply *only* to qualities; *i.e.* what are referred to by adjectives or abstract nouns; *i.e.* only to qualities which can be somehow represented as being *inevitably* the first and last of a compact series of qualities.

This, of course, is not very helpful as an explanation of what we mean by "opposite". For how do we know that black comes at one end of the range of greys of varying intensity, at the other end of which comes white? There is no recognised linear chart of intensities to which we can appeal, and if we were required to make such a chart we should probably start from the *axiom* that black and white come at opposite ends. We cannot, therefore, *learn* from the chart that black and white are opposites. But it is, I think, true to say that if we know what "white" means we also know that the opposite of white is black; and that the knowledge *that* there is an opposite to a given quality is the same as the knowledge that both form part of a single range. It seems clear that we could discover what ranges exist (*i.e.* what qualities we think of in ranges) only by empirical

methods. I know that black . . . white forms a range; and that *e.g.* depressed . . . elated forms a range. And therefore I know that black and depressed are of different categories, because they form part of different ranges. But I also know that, though they are of different categories, their categories function, so to speak in analogous ways. That is to say, although it is a category mistake to ask "What colour is depression?" I might have aesthetic reasons for replying "black"; and I could, in theory, go through all the qualitity ranges from beginning to end, making each of one range equivalent to one of the other. It is in this way that people ascribe textures (rough, smooth, etc.) to vowel-sounds; or colours to musical tones. Each of these ascriptions *is* a category mistake, but it is not so absurd as it would be in the case *e.g.* of the question "How loud is a telescope?" Thus, we know that opposites must be in the same category—they must be of the same kind, though *of* that kind, as different as possible. But, further, to know of something that it *has* an opposite is to know something about how we think of that thing and what other kinds of thing it is analogous to.

It seems, therefore, first that Aristotle's attempt to distinguish categorically different terms by enquiring whether they could have opposites or not was not foolish, though he did not carry the investigation far enough. The interesting question is, *e.g.* why only *some* of the qualities have opposites. Secondly, his attempt to elucidate the metaphorical use of "opposite" did not help him to carry the investigation further, and this was because he failed to emphasise the very severe limitations on the use of "separated by the greatest distance", when that is meant to translate "opposite".

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VII.—CRITICAL NOTICE

Moral Obligation : Essays and Lectures by H. A. PRICHARD. Oxford : at the Clarendon Press. Pp. iv + 201.

THIS book, edited by Sir David Ross, contains all the writings on ethical subjects which were found in a suitable state for publication among the papers left by Professor Prichard at his death. It also contains reprints of certain published articles, viz., *Does Moral Philosophy rest on a Mistake?* (1912), *Duty and Ignorance of Fact* (1932), and *The Meaning of ἀγαθόν in the Ethics of Aristotle* (1935). The most extensive items in the new material are a set of lectures on *Green's Theory of Political Obligation*, which the Editor dates 1935-7, and part of a book on *Moral Obligation*, with which Prichard was long busied and to which he seems to have added little since 1937. The rest of the new material consists of seven short papers or notes on various ethical topics, *viz.*, *The Object of a Desire* (1940), *The Obligation to keep a Promise* (*c.* 1940), *Exchanging* (1940), *The Time of an Obligation* (*?*), *The Psychology of Willing* (*?*), *Acting, Willing, and Desiring* (1945), and '*Ought*' (1947).

In the present review I shall not discuss the works which have already been published, with the exception of *Does Moral Philosophy rest on a Mistake?*. It will be useful to give a short summary of the main conclusions of this extremely influential paper, so that those who are interested may compare them with Prichard's later views. My impression is that his opinions remained fundamentally the same from 1912 to his death.

The essential doctrines of *Does Moral Philosophy rest on a Mistake?* may be summarized as follows :—(1) The rightness or wrongness of an act depends on its being the origination of a certain state of affairs *A* in a certain situation *S*, which consists of a certain relationship *R* of the agent either to himself or to certain others.

(2) To judge whether an act would be right or would be wrong one may have to consider more fully the following two purely factual questions : (i) Would it or would it not originate *A?* (ii) What is the relationship *R* involved in the situation *S?* This kind of consideration involves only ordinary processes of *non-moral* thinking.

(3) When this is finished one recognizes that the act is obligatory or that it is wrong *immediately*, if one does so at all. If one recognizes this, one does so by an act of *specifically moral* cognition, which Prichard compares with mathematical insight. One does not come to see by *any* kind of argument that one is under an obligation to do so-and-so, and in particular one does not come to see it by an argument from the premiss that the act would itself *be good* or that it would *lead to good consequences*.

(4) Different features in a situation may give rise to obligations which conflict. Obligations have various degrees of urgency, and, when obligations conflict, the question is : ' Which is the *most urgent ?* ' and not : ' Which act would lead to the *best consequences ?* '

(5) A person may be said to have had *P* as his ' purpose ' in doing the action α, if he desired *P* and it was that desire which moved him to do α. Usually the agent's purpose is something other than the action, which he thinks that the action will contribute to bring about. But his purpose in doing α *may* be just the action α itself.

(6) An act may be done from a motive without being done for a purpose. In so far as an agent is moved to do an act (*e.g.*, to hand over a sum of money to another) simply by the belief that he is under a moral obligation to do so and by the desire to do his duty, he has *no purpose.* He does not desire to do the act of handing over the money *as such* (as, *e.g.*, he might desire to sing a song or dance a reel), nor does he do the act as a *means* to producing something else which he desires to exist for its own sake (*e.g.*, his own or the other man's feeling of satisfaction).

(7) A motive is anything that may move a person to do a deliberate act. Desire to realize a purpose and desire to do what is right as such are two co-ordinate kinds of motive. They may, of course, co-operate or conflict in any particular case.

(8) We must distinguish between specifically *moral* (or *conscientious*) action and *virtuous* action. An act is moral in so far as it is done from the belief that it is obligatory and the desire to do one's duty. It is virtuous in so far as it is done from some intrinsically good motive other than sense of duty, arising from some intrinsically good emotional disposition (*e.g.*, personal affection).

(9) No one can be under an obligation to do either a moral or a virtuous action ; for that would imply that he is under an obligation to be moved by a certain motive, and this is nonsensical. But he may be under an obligation to do in certain circumstances an act which is precisely similar to that which would proceed under those circumstances from a particular virtuous disposition ; *e.g.*, to do the same kind of act as a generous man would gladly do from generosity. He may also be under an obligation to try to cultivate virtuous dispositions.

(10) An act has intrinsic goodness if and only if it is either moral or virtuous. It is best if the conscientious motive is combined with some virtuous motive.

(11) Our apprehension of the goodness of what is intrinsically good is as immediate as our apprehension of the rightness of what is right in a given situation.

(12) The whole content of Moral Philosophy is the recognition of the fact that our apprehension, both of the goodness of good states of affairs and of the rightness of right acts, is immediate. In so far as it professes to give *reasons* for what can be apprehended only, if at all, by direct insight, it ' rests on a mistake '. Prichard

thought that most of the so-called ' Theory of Knowledge ' rests on a parallel mistake.

From this summary I pass to the lectures on *Green's Theory of Political Obligation*. Seldom can the floor have been more thoroughly wiped with the remains of one who was at one time commonly regarded as a great thinker and who still enjoys a considerable reputation in some circles. A large part of the lectures is occupied with disentangling the strands of clotted masses of verbiage, in which inconsistency and nonsense are concealed by ambiguity.

The main points of general interest which emerge are the following :

(1) Green really rejects the specifically moral ' ought ' altogether. For a person to be under an obligation to do an act comes to mean simply that his *purpose* will not be realized unless he does it.

(2) Prichard points out that we must distinguish between the *de facto* realization of a desired state of affairs and the necessary and sufficient immediate condition of the satisfaction of the desire for it. The mere *de facto* realization of X is neither necessary nor sufficient to cause the gratification or satisfaction of one's desire for X. The experience of satisfaction in respect of that desire will be enjoyed if and only if one comes to *know* or to *believe* (correctly or incorrectly) that X is or will be realized. It follows that the immediate condition for the satisfaction of A's desire for X cannot be the same as (or indeed have anything in common with) the immediate condition for the satisfaction of B's desire for X.

(3) Now Green holds that each man has one and only one ultimate purpose, *viz., his own greatest good*. He also holds that a man's greatest good is that which is the immediate necessary and sufficient condition for the maximum satisfaction of all his desires. Nevertheless he also holds that in an organized society the good of *each* member is the aggregate of the goods of *all the other* members. These propositions could be combined consistently only on the assumption that each member of an organized community is identical with every other member. Green does in fact make this absurd assumption, according to Prichard.

(4) It is a part of Green's theory that there can be no obligations or rights except as between the various members of a community which includes some authority which issues and enforces regulations. This can be reconciled with certain obvious facts only by such palpable fictions as asserting that the human race as a whole is a ' community ' in this sense.

(5) Members of an organized community think that they have a *prima facie* obligation to obey the constituted authority in it. Neither this obligation nor the belief that one is subject to it could possibly arise from the mere fact that the rulers had ordered obedience and had instituted sanctions for disobedience.

(6) Prichard remarks that it is commonly assumed that there is one and only one ground for the obligation of a subject to obey his rulers, and that this (whatever it may be) is the same in all

kinds of state. But it may well be that there are several different grounds, and that these vary according to the past history and present constitution of a state. One ground may be that the government was instituted by explicit or tacit agreement; another may be that, however it may have originated, it is now an efficient means of providing security and promoting welfare among its subjects.

(7) In any event the obligation to obey one's rulers is one which may be over-ridden in particular cases by more urgent obligations.

We can now turn to the long essay on *Moral Obligation* (pp. 87 to 163), which is the most important single item in the collection. Prichard distinguishes four main questions. (1) What is *meant* by being under a moral obligation to do so-and-so? (2.1) Will a man be *better off* for doing his duty? (2.2) *Ought* a man to do his duty? (Here 'ought' must be used in some non-moral sense, as in the question: 'Ought I to take the first turning to the left?'). (3) Is there any one characteristic which an act must have in order to be obligatory? If so, what is it?

We will now consider Prichard's attempts to answer these questions.

(1) WHAT IS MORAL OBLIGATION? (i) Prichard begins by distinguishing between non-moral and moral imperatives, *e.g.*, 'You ought to give your wife a second dose of arsenic' and 'You ought to repay to *B* the money which he lent to you'. He holds that there is nothing common to the two. 'You ought (in the non-moral sense) to do *X*' means simply: 'Unless you do *X* your purpose will not be realized'. (This seems to me to be quite plainly untrue.)

(ii) As regards the moral 'ought' there are *prima facie* two alternatives, *viz.* that in saying 'You ought to do *X*' one is (*a*) making a *categorical* statement about a *person*, or (*b*) making a *hypothetical* statement about an actual or possible *act*. On the latter alternative one would be saying, *e.g.*, 'If you did pay, or are paying, or are going to pay, or were to pay that debt, your act was, or is, or will be, or would be one which *ought to exist*. Prichard rejects the second alternative. His fundamental reason is that, as we shall see later, he holds that the phrase 'ought to exist' is meaningless. So he concludes that a sentence of the form: 'You ought to do so-and so' expresses a *categorical* proposition in which a *unique* kind of predicats is ascribed to a *person*.

(2.1) DOES DOING ONE'S DUTY NECESSARILY MAKE ONE HAPPIER THAN OTHERWISE?

(i) Prichard begins by pointing out that the discussion will necessarily differ according to whether one has or has not explicitly distinguished between the moral and the non-moral senses of 'ought'. He considers that Plato and Butler are instances of great moralists who failed to draw this distinction. Butler's answer was that, unless an action will make for the agent's happiness, he *cannot* be under an obligation to do it. Plato's answer was that, although

this is not so, yet it can be shown that to do one's duty *will always* in the long run make for one's happiness.

(ii) In his very elaborate discussion of Plato's position Prichard draws an important distinction between what he calls the 'adjectival' and the 'substantival' senses of the word 'good'. (*a*) An example of the adjectival sense is provided by the sentence 'Courage is good'. As regards this sense Prichard makes the following statements. 'Good', in the adjectival sense, denotes a property which (α) belongs to a term independently of its relations to other terms; (β) is co-extensive, but not identical with the property of arousing approval when thought of; (γ) is indefinable; and (δ) is such that, *e.g.*, to be courageous and to be generous are *ways* of being good, so that to say of a man who is generous and courageous that he is good is not like saying of him, *e.g.*, that he is hot-tempered besides being generous and courageous. In this sense 'good' is most naturally applied to human dispositions or actualizations of them, or to persons in respect of having such dispositions.

(*b*) As an example of the substantival sense of 'good' we may take the sentence 'To have many friends is a great good'. On reflexion one sees that the phrase 'a good' is always an abbreviation for 'a good for so-and-so'. In the end '*X* is a good for *A*' means that *X* excites pleasure in *A*. (This is far from evident to me.) This pleasure may consist either in *satisfaction*, which arises from a person's knowledge or belief that one of his desires has been or will be realized, or in *enjoyment*, which arises in some other way. In order that *X* may be a good for *A* it need not be the *immediate* cause of pleasure in him, for we should say that to be healthy or wealthy was a good for a healthy or wealthy person.

(*c*) Prichard holds that there is nothing in common to the two senses of 'good'. The malicious *A*'s pleasantly toned belief that *B* is suffering is *a good* for *A*, but that satisfaction *is* evil. It is most important to distinguish between *A*'s *total good*, *i.e.*, either his satisfactions and his enjoyments or the totality of things which make him happy, and *A*'s *goodness*. Prichard thinks that Moore confused the two in his so-called 'refutation' of ethical egoism.

(iii) As regards the original question Prichard says that the only hope of getting an affirmative answer would be to show that conscientious action is its own reward and that this reward is so overwhelmingly great as to outweigh all possible unpleasant consequences. He rightly concludes that, without appropriate theological premisses, there is no hope of answering the question with a universal affirmative.

(2.2) OUGHT A MAN TO DO HIS DUTY ? (i) Prichard thinks that this question has a meaning if and only if psychological hedonism be accepted. The 'ought' must of course be the non-moral one, and the question would mean: 'Is doing one's duty a necessary condition for attaining what (it is assumed) is the one ultimate purpose of anyone, *viz.*, his own greatest happiness ?'

(ii) If we accept psychological hedonism, the only answer is that no general answer is possible. If we do not assume that all men have at all times *mutatis mutandis* the same ultimate purpose, the question collapses. The answer will depend on the nature of a person's ultimate purpose at any particular moment.

(iii) Prichard then embarks on a discussion of psychological hedonism, which begins promisingly and then suddenly peters out. He thinks that many philosophers have been led to accept an initially unplausible theory of human motivation by the following three steps. (*a*) They assume that a person's purpose in doing an action is always something other than the action itself, *viz.*, something which he desires and which he thinks the action is likely to bring about. This leads to the two metaphors of calling a purpose an 'aim' and calling it an 'end'. Both are inappropriate when, as is sometimes the case, one's purpose is simply the action itself. (*b*) They see that, if one is to desire *anything*, one must desire something *for its own sake.* (*c*) They then assume that each person in *all* his deliberate actions is moved by a desire for *one and the same* end. Then, and only then, it becomes plausible to suppose that this is his own greatest pleasure.

(3) WHAT MAKES OBLIGATORY ACTS OBLIGATORY? Prichard divides answers to this question into what he calls 'teleological' and 'quasi-teleological' theories. We will consider these in turn.

(3.1) *Teleological Theories.* (i) A teleological theory of obligation is one that claims to reduce the moral 'ought' to the non-moral one, *without* introducing another kind of 'ought' which might be described as 'oughtness-to-exist'.

(ii) There are traces in Sidgwick's *Methods of Ethics* of a view which is really different from this, *viz.*, that, *if* a person desires X for its own sake, then (quite independently of whether we can say that X ought to exist or ought to be desired) he *ought* (in the moral sense) to do any act that he thinks will best contribute to the realization of X. This Prichard rejects without more ado.

(iii) The full-blown teleological theory is that each person has in fact one and only one ultimate purpose in all his deliberate actions, and that to say that he ought to do X in situation S is equivalent to saying that by so doing he will best further the realization of that purpose. After a certain amount of discussion Prichard concludes that the only purpose which it would be at all plausible to ascribe to an individual in all his voluntary actions is *his own maximum happiness.*

To this theory Prichard has two fundamental objections. (*a*) It attempts to resolve the moral 'ought' into the non-moral, instead of stating what properties an act must have in order to be *morally* obligatory. (*b*) A moment's reflection shows us that *no* act is rendered obligatory on a person merely by being the most efficient means that he can take in order to secure his own maximum happiness.

(iv) Many eminent philosophers have failed to be clear about the distinction between the moral and the non-moral ' ought '. This failure may happen in two different ways. (*a*) The philosopher may definitely ask himself the question : Do we mean the same by ' ought ', in the sense of ' morally bound ' and in the sense of ' necessary to realizing some purpose of the agent's ? ' And he may answer it in the affirmative. Prichard thinks that Bentham put this question and gave this wrong answer to it. Or the philosopher may never put the question to himself, and simply fail to notice that there is a difference. Prichard thinks that this was so with Mill and with Green. (It may be noted that pp. 120-128 consist of little more than a repetition of passages already printed earlier in the book in the lectures on *Green's Theory of Political Obligation*.)

(3.2) *Quasi-Teleological Theories.* These theories hold that there is a single end at which each of us *ought to aim*, and that an act is obligatory on a person if and in so far as it is most conducive to the realization of that end. Such theories therefore involve the notion of ' ought-to-aim ', and Prichard's main criicism is that nothing answers to this phrase. His chief arguments may be stated as follows. To say that a person ought to aim at X must mean that he ought (in some specifically moral sense) to desire X and to be moved to action by that desire. But this is nonsensical. For (i) *moral* obligation is essentially an obligation to perform some *action*. (ii) A person cannot be under a moral obligation with respect to anything that is not within the power of his will. Now it is not within the power of a person's will to desire or not to desire X, nor, if he desires X, to do so strongly enough to overcome any conflicting desires which he may have. (iii) Inspection shows that one's obligation in a given situation is simply to perform a certain *kind of action*, and is never to perform an action *from a certain motive*.

(It seems to me that in answer to this it must be said that we quite certainly do use ' ought ' in a *moral* sense in respect of desires and emotions. It is perfectly intelligible and quite usual to make such remarks as : ' You ought to feel ashamed of yourself ', ' You ought not to wish for another's humiliation ' and so on. The ' ought ' here is certainly a form of moral ought, and the inference would seem to be that Prichard failed to recognize that there are at least two *moral* ' oughts '.)

This leads Prichard on to an elaborate discussion of Joseph's contention that an action, in the sense in which action is morally imputable, cannot be ' separated from ' the motive which moves the agent to do it. Prichard says that Joseph's language suggests that his view is that one *can* consider an action in abstraction from its motive (as one can, *e.g.* consider a Rugby football in abstraction from its ovoid shape), but that, so considered, it is not properly called an ' action ' and is not morally imputable. He thinks, however, that Joseph's language is here misleading and that something much more radical was meant. So far as I can understand

Prichard, the view which he ascribes to Joseph is the following. If one tried to think of something as being an action, without thinking of it as being done from a certain motive (*e.g.*, malice), one would find that one was failing to think of anything at all (as one would, *e.g.*, if one tried to think of something as red without thinking of it as coloured). On that view, says Prichard, there would be nothing for a motive to be the motive of, and therefore there would be no motive. In point of fact, however, the motive of an action is not even a part of it ; it is something external to it which moves the agent to do it.

If it be admitted that it is meaningless to talk of an obligation to aim at a certain end, it follows at once that all forms of quasi-teleological theory of obligation can be rejected. But Prichard has another shot against them in his locker. Suppose that it were significant to say '*A* is under a moral obligation to aim at *X*'. Then it would not *follow logically* that *A* is under a moral obligation to do that action which is the most conducive of those within his power to the realization of *X*. Nor, says Prichard, would it be in the least *self-evident* that he ought to do such an action, regardless of whether he was *in fact* aiming at *X* or not.

Prichard devotes the rest of this division of his subject to an attempt to clarify and then to refute the highly confused arguments by which Sidgwick sought to put the readers of his *Methods of Ethics* into a position to see for themselves the intrinsic necessity of his two 'principles' of 'Prudence' and of 'Rational Benevolence'. He thinks that one fallacy which Sidgwick commits here is to identify the aggregate composed of *A*'s whole good, *B*'s whole good . . . etc., with the aggregate of all things which *are good*. He suggests that this identification, which involves a confusion between the substantival and the adjectival senses of 'good', is one of the commonest fallacies in the *Methods of Ethics*.

(4) Goodness and Obligation. The rest of this essay is devoted to an elaborate discussion of various possible forms of the very common view that an act cannot be obligatory unless *something good* will come into existence if and only if it is done. Prichard distinguishes three possible varieties of this view. According to them an act is obligatory (I) if and only if it has the *best effects*, or (II) if and only if it is the *best act*, or (III) if and only if it *either* has the best effects *or* is the best act, of all the acts open to the agent in the situation. Prichard counts Rashdall and Moore as supporting (I), Laird as a supporter of (II), and Joseph as a supporter of (III). But he notes that each, while beginning with some one of the three views, tends to slide into some other of them. Prichard first makes special objections to each of the three views in turn, and finally makes a general objection which he thinks is fatal to all of them.

Theory I. The essential defect of the Utilitarian theory is that it fails to stand up to the test of instances. According to it, if *A*

could do two alternative acts, each of which would produce equally good consequences, he would be under an equally urgent obligation to do either of them. But in fact no one believes this. Each of us has to consider *who* will be made better or made worse by his acts ; and the urgency of the obligation to produce equally good effects varies greatly according to whether they will be produced in himself or in another, and, if in another, on the relationship in which that other stands to the agent.

Theory II. It is generally admitted that the goodness of an action depends on the nature of the motive which moved the agent to do it. So this theory involves the view that a person ought to be moved to action by certain desires because those desires are good. The theory can take two different forms. (*a*) It may hold that there is one and only one good motive, *viz.*, the desire to do what is right as such, and that it is obligatory to be moved by this. (*b*) It may hold that there are other good motives, *e.g.*, benevolence, personal affection, gratitude, etc., and that what is obligatory is to be moved by one or another of these.

If Prichard be right in holding that there can be no obligation to be moved by any particular motive, both forms of the theory collapse at once. But, he alleges, the theory leads to highly paradoxical consequences even if we waive this objection.

(i) If the theory be true, one is never, strictly speaking, under an obligation to *do a certain action*, *e.g.*, to give up an evening to reading to a blind friend. One is only under an obligation to *be moved by a certain motive*, *e.g.*, pity for his affliction, to do some act or other which expresses that motive.

(ii) If form (*a*) of the theory were true, the consequences would be still more paradoxical. For, according to it, one's only obligation is to be moved by a motive which involves the belief that one is under an obligation *to do certain acts*. But, according to both forms of the theory, this belief is in principle delusive ; for one is *not* under an obligation to do any act, but is only under an obligation to be moved by certain motives.

(iii) If form (*b*) of the theory were true, it would be impossible for a person to do *from a sense of duty* any act which was *in fact* his duty. For, according to this form of the theory, in order for an act to be obligatory on *A* his motive for doing it must be some good motive, such as benevolence, *other than* the belief that it is right and the desire to do what is right as such.

Theory III. Since this is a disjunction of (I) and (II), a conjunction of the objections to (I) and the objections to (II) constitutes an objection to it.

General Objection to all three Theories. All three theories start by asking the question : ' What characteristic, other than that of being morally obligatory, is common and peculiar to morally obligatory acts and renders them obligatory ? ' Prichard says that this question presupposes that the phrase ' morally obligatory '

denotes a characteristic common and peculiar to certain *acts*. (This was, indeed, denied by Joseph, but Prichard argues that Joseph here combines assertions which are inconsistent with each other.) The question therefore arises: 'What is this common characteristic supposed to be?' Prichard says that he thinks that it would have to be described by some such phrase as 'oughtness-to-be', and he brings forward evidence to show that a number of philosophers have in fact taken for granted that 'oughtness-to-be' describes a property which is possessed by anything that is *good*.

Prichard then argues that there can be no such characteristic. For the categorical proposition S is P entails that S exists. Therefore, if there were a characteristic denoted by 'oughtness-to-exist', the statement '*X* ought to exist' would entail that *X does* exist. But it is obvious that this is not so. Therefore, Prichard concludes, the question which Theories I, II, and III set out to answer is an idle one, based on a false assumption.

I find it difficult to persuade myself that this argument is very formidable. I take it that, when one says 'So-and-so ought to exist' or (what is equivalent) 'There ought to be so-and-so', one is taking a description, explicit or implied, of 'so-and-so', and is asserting that it ought to have an instance. This assertion is logically independent of whether that description does or does not have instances. Thus, *e.g.*, the sentence 'There ought to be laws against cruelty to animals' is surely perfectly intelligible, and is equally so now in England where there are such laws and in England in the seventeenth century when there were no such laws. We can now say: 'There are laws against cruelty to animals, and that is as it should be'; and a humane ancestor in the seventeenth century could have said: 'There are no laws against cruelty to animals, but there should be such laws'. If that be so, I see no *logical difficulty* in an assertion of the form: 'If and only if an act would have the property *P* if it were to occur, then such an act ought to occur'.

With this the essay on *Moral Obligation* ends, but the general notion of the moral 'ought' is further discussed in two short notes entitled *The Time of an Obligation* and '*Ought*'. The former of these seems to me to be much ado about very little. The latter is too obscure to myself for me to venture to try to convey its meaning to others.

Two of the essays, *viz.*, *The Obligation to keep a Promise* and *Exchanging*, deal with particular kinds of obligation which Prichard found puzzling. The former is of great interest and I will therefore summarize it.

(1) When a person promises to do something he seems *prima facie* to be creating an obligation. But reflexion shows that an *obligation* is not the kind of thing that could possibly be created. What the promissor must be doing is bringing into existence something which imposes an obligation on him. The question is: 'What is this something, and how does it impose an obligation?'

(2) Prichard argues that it will not do to say that it is an *expectation* in the mind of the promissee. His main argument is as follows. When *A* promises *B* that he will do *X* he does, no doubt, generally arouse thereby in *B* an expectation that he will do *X*. But such expectations can be aroused in other ways ; and, when such an expectation is aroused in *B* by a *promise*, it depends upon *B*'s believing (i) that *A* believes himself, *irrespective* of any expectations which he may have aroused, to have put himself under an *obligation* to do *X*, and (ii) that *A* is a more or less conscientious person, who, as such, is likely to fulfil what he takes to be his obligations. Now, suppose that the expectation-theory were the whole truth. Then the expectation which, according to the theory, is the *only* ground of *A*'s obligation to do *X*, could arise in *B* only in so far as *B* ascribes to *A* a belief about the ground of his obligation to do *X* which, according to the theory, is in principle false. Prichard in fact goes further than this. He says that *B* must ascribe to *A* a belief which, if the theory were true, he *could not* have. (I can see no justification for this. Surely the theory might be true, and yet every promissee might believe—and even correctly believe—that the promissor holds a belief about the grounds of his obligation to keep his promise which is inconsistent with the theory and therefore false. Nor is it clear to me why Prichard should hold that *B* must ascribe to *A* the belief that he has put himself under an obligation to do *X irrespective* of any expectations which he may have aroused.)

(3) Prichard's own very tentative answer is as follows. (i) When *A* makes a promise to *B* he utters certain characteristic words, *e.g.*, ' I promise to ' or ' I will ', in connexion with a description of *X*. *B* hears and understands these characteristic expressions. (ii) It is his causing *B* to hear these sounds in this context which puts *A* under an obligation to do *X*. (iii) But this can give rise to an obligation only because *A* has already somehow made with *B* a *general* agreement not to use such expressions in connexion with the description of an act without going on to do that act.

(4) Prichard fully realizes that this theory is open to very strong *prima facie* objections. (i) None of us has any recollection of having made such a general agreement in the past. (ii) The problem of how one puts oneself under an obligation to do *X* by promising to do it is merely replaced by the problem of how one puts oneself under an obligation not to use certain verbal expressions in certain contexts without following them up with the appropriate action. To this Prichard's only answer is that it may well be necessary as a first step to substitute the latter for the former problem, and that the prior general promise must *somehow* have been given without using the peculiar verbal forms in which we subsequently make particular promises.

He evidently remained greatly puzzled by the question. For he ends the essay by saying that he is really suggesting, not a solution

but the following problem for consideration: 'What is that something, implied in the existence of agreements, which looks very much like an agreement, and yet, strictly speaking, cannot be an agreement?' This is a genuine enough problem.

The remaining three essays are on what might be called the 'philosophical analysis of volition and voluntary action'. They are entitled *The Object of a Desire*, *The Psychology of Willing*, and *Acting, Willing, and Desiring*. I do not propose to consider them in detail, for I have already devoted enough space to the purely ethical parts of the book, which are its most important contents.

This book is a most important and interesting contribution to moral philosophy. Too many of the papers which have appeared on this topic in recent years seem to be written by persons who are 'composing without their eye on the subject'. By this I mean that their authors seem to have little direct acquaintance with or interest in moral problems. They have accepted a general theory of judgment and of significance which was devised without reference to moral phenomena, and into which such phenomena fit very badly, and they now devote themselves with infinite ingenuity to stretching the facts to fit the theory. It is therefore most refreshing to read a book by a man like Prichard, who was really at home in the facts about which he was philosophizing, who was passionately interested in them, who had a certain healthy naivety and common-sense which made him immune to clever talk and ingenious fictions, and who had exceptional powers of patient analysis and subtle argumentation.

C. D. BROAD.

VIII.—NEW BOOKS

Mathematics in Aristotle. By Sir Thomas Heath. Oxford : Clarendon Press. Pp. xiv + 291. 21s.

This is Sir Thomas Heath's last contribution to the history of mathematics. He was still working at it at the time of his death, but he had fortunately brought it so near to completion that Lady Heath was able to see it through the press with the help of Sir David Ross and Mr. Ivor Thomas. All who are interested in the history of mathematics will be grateful to them for their labours.

The book contains translations of all the most important passages on mathematics in Aristotle and in the pseudo-Aristotelian *Mechanics*, *Treatise on Indivisible Lines* and *Problems*, together with some commentary. It appears that the commentary is not quite complete. At least some passages which seem to call for some comment lack it. The passages are grouped under the name of the work in which they occur, although occasionally one is transposed in order that a set of closely related passages may be treated together. The order of the works is almost exactly that followed by Blancanus ; the present book might indeed be regarded as a modern English edition of his *Aristotelis Loca Mathematica* (1615). This order appears to be somewhat haphazard, but it would be difficult to suggest a satisfactory arrangement, whether logical or chronological, and the most important point is that the reader should be able to find any passage quickly, as he can by use of the full summary of contents and the index of passages translated.

The translation is as clear and as elegant as the original allows : for it must be admitted that Aristotle was not always at his most lucid on mathematical subjects. Where Sir Thomas differs from the Oxford translators, he seems in general to be right. I think that an exception is his reading and rendering of *Eth. Nic.* 1142*a* 25, where the Oxford translation gives a better philosophical sense and one more consistent with what Sir Thomas himself says later on the same page.

The commentary clears up many difficult textual points and provides a wealth of scholarly information on the history of mathematics and mathematical terminology. Sometimes, as in the case of the *Mechanics*, a brief summary of the argument is given, and sometimes the solution to an Aristotelian puzzle, as in the case of the interesting problem called The Wheel of Aristotle. Of most philosophical interest are the discussions of ' hypothesis ' and related terms, of Zeno's paradoxes, and of the relation of mathematics to other sciences. The last topic is treated at length in the introduction. In his general interpretation of Aristotelian thought Sir Thomas follows Sir David Ross.

I have noted the following misprints. The footnote on p. 100 should read " Aristarchus ", the reference for *An. Post.* 76*b*-77*a* is wrongly given in the index and on p. 246, " D'Ortons de Mairan " should be " Dortous de Mairan ".

Martha Kneale.

John Locke's Political Philosophy. By J. W. GOUGH. Oxford University Press, 1950. Pp. vii + 204. 12s. 6d.

THIS book consists of eight studies on various problems in Locke's political philosophy; although, of course, those problems are interrelated, Mr. Gough has fortunately chosen to make each study more or less independent so that cross-references are reduced to a minimum. The book does not set out to present a lengthy history of the ideas that interested Locke, but, by concentrating on his published and unpublished writings, to examine in some detail the treatment he afforded them. Sometimes though this rule is broken and we are provided with interesting accounts of the development of certain ideas: such as that of trusteeship, or of the separation of powers.

Naturally, from a philosopher's point of view, those studies vary greatly in interest; although nowhere will he encounter any fully analytical treatment of the ideas discussed. In some ways what Mr. Gough has to say in his first study about Locke's ethical views is the most interesting thing in the book. He quotes from a hitherto unpublished and indeed unknown set of essays, now in the Lovelace Collection, to show that Locke did not consistently hold to the idea that morality could be exhibited as a deductive system which he put forward in the *Essay*, but that at other times he was content to maintain that morality was 'rational' in some weaker sense.

Mr Gough is less convincing in his attempt to rehabilitate Locke's notion of 'tacit consent' as the justification of political obedience. For surely the idea of a promise which one is not aware of making is a contradiction in terms; and if, as Hume suggested, Locke did not mean 'consent' to be equivalent to 'promise', then it is difficult to see why he thought that to 'consent' to a government in this loose sense in any way establishes an obligation towards it.

RICHARD WOLLHEIM.

The Psychology of Meaning. By KALI PRASAD. Lucknow: The University of Lucknow, 1949. Pp. vi + 209. Rs. 10 or 15s.

PROFESSOR PRASAD sets out to discuss and criticise theories about 'meaning'; in the background is his own view, which he briefly outlines. The book is interesting and should prove a useful survey. It is well-arranged and illustrated by examples. The excellent English and style of the writing contain only one misuse—"implicate" for "imply".

It would seem that 'meaning' can be found in two sorts of situations. It can be found in an experience, as for instance when the perception of a red light at a street corner has the meaning *stop*; here the observer's experience contains the meaning. And it can also be found in observed behaviour, as for instance when Pavlov's dogs salivated at the sound of a bell; here an experience containing a meaning is attributed to some person or animal other than the observer. One might suggest that there is a relation between the two: that 'an attribution of an experience with meaning to an observed person or animal' is a meaning contained in the observer's experience.

The author, however, is concerned less with distinctions of this kind than with theories about the genesis or cause of a meaning as a component of an experience. There he divides into two types: those according to which meaning is added to a perception by some causal factor and those

according to which it emerges through some sort of synthesis of perceptions that lack meaning. (This is reminiscent of the vitalist-mechanist issue.)

Professor Prasad considers that the hypothesis of a causal factor is inconsistent with the facts. Thus a crab may crawl towards a light, but its behaviour cannot, he holds, be regarded as an effect simply of the light, for there is great variation in the behaviour of crabs in such circumstances —they zig-zag for example. Again a wasp, belonging to a type that stores caterpillars in closed compartments, was engaged in closing the compartments, when an observer made new openings ; the wasp proceeded to close them. Moreover, when the observer took out the caterpillars, the wasp put in others before closing the new hole. And the author gives many other striking examples. He holds that such behaviour is evidence not of an invariable reaction to a stimulus but an appreciation of the meaning of the situation as a whole. He wisely points out, however, that there is no reason to postulate *conscious* (introspection-based ?) appreciation of the meaning. This might be expressed by saying that the animal ' knows how ' to respond to a (meaningful) situation, without having to be capable of ' knowing that ' there is a meaningful situation.

On the other hand, Professor Prasad denies that meaning is a product of a synthesis of meaningless perceptions. He gives detailed objections to various forms of this view that have been put forward ; but his general objection is that observation reveals no such elements, for no matter how far we analyse the constituents of a meaningful experience we never get anything except meaningful experiences. (This makes it necessary to correct the mode of statement in which ' meaning ' was introduced above, where we said that *stop* was a meaning contained in the perception of the red light ; for the perception of the red light itself contains a meaning.)

All this is discussed and illustrated not only in connexion with animal behaviour ; but also in connexion with the behaviour of primitives and of children. The author discusses the neural basis of meaning, but finds no reason to regard meaning as localised. From experiments with Rorschach ink-blots he found that meaning is not built up but comes ' in a flash '. Regarding the psycho-analytical theory of meaning, with which he is sympathetic, he stresses that unconscious genetic factors, which analysts regard as causes of behaviour patterns, cannot be equated with meanings of those patterns ; for though meaning may be partly unconscious (unrecognisable ?), it may also be partly conscious (recognisable ?). Psycho-analysts would probably accept this, though it is offered as a criticism.

The author is evidently influenced most strongly by ideas derived from two sources : Gestalt-psychology—in particular Lewin's ' field-theoretical approach '—and Freud's dynamic concepts. His account of the emergence of meaning might be put thus : a stimulus in an environmental field acts upon an organism in such a way as to evoke a ' directional ' response, which leads to adaptation to the field—certain ' directional ' responses being attitudes, sentiments, and so on.

The objections to the two older types of approach will be acceptable to many and will perhaps induce psychologists who still hold one or other type of view to give the matter further reflexion. Professor Prasad's positive approach is clearly in line with current thought on a number of subjects, in which the issue has hitherto lain between two alternatives equally unsatisfactory and in which a functional approach is now attempted. While one may accept this functional approach, however, it is doubtful whether, after a good clearing of the ground, he has taken a

fundamental step forward towards his goal. Thus his account of emergence of meaning, just mentioned, seems to be a *statement* of the problem—albeit the problem properly understood—rather than a hypothesis providing us with an answer.

I would mention that a simplification would be effected by discarding the phrase " as a whole " in " situations as a whole " and the like. It is an understandable rhetorical device to wean us from atomistic psychology; but it is redundant. And there is no need to say that meanings are ' wholes '; it suffices to say that meanings do not emerge by combining elements, and that analysis of a meaning never leads to elements that lack meaning. (A geometrical line may be divided endlessly without our reaching elements other than lines, yet we do not speak of lines as ' wholes '.) To speak of situations ' as a whole ' or meanings as a ' whole ' suggests an analogy with organisms, and may also foster a belief that wholes can be objects of scientific study.

J. O. WISDOM.

Existence and Inquiry. A study of Thought in the Modern World. By OTIS LEE. Chicago: The University of Chicago Press (Cambridge: University Press), 1949. Pp. ix + 323. 22s. 6d.

MR. OTIS LEE was Professor of Philosophy at Vassar before his recent early death. In his philosophical approach he seems largely to have been influenced by Whitehead, of whom he was a student, and overtones of the master's metaphysics are to be found reverberating throughout its pages. But in the main the book is a protest against modern trends of analysis and enquiry and though its content is largely historical, the history of the concept of enquiry in philosophy from Descartes to the present day, it is yet history of philosophy with a difference. Mr. Lee is critical of the classical treatment of the history of philosophy as a procession of ' bloodless categories ' unrelated to any historical or social context. On the other hand, he does not accept the view fashionable in some quarters that the way to understand philosophy is through a study of history, which is itself a gratuitous example of the genetic fallacy. He clearly sees it as a discussion of certain recurrent problems in the stream of philosophical thought.

By far the most interesting part of this book lies in his examination of the nature of philosophical enquiry itself. He points out that enquiries into the nature of knowledge, the limitations of the human mind and language, have in the past figured large in philosophical discussions. Recent events, however, in science and society, have undermined many of our fundamental presuppositions and values, and this has brought about a need for a drastic revision of our ideas on this topic.

Mr. Lee complains that in contemporary philosophy more stress is being laid on the development of intellectual techniques and skills, and less and less on the subject-matter and aim of enquiry We are so busily engaged in transforming ourselves into philosophical clinicians, that we have failed to notice that the patient has slipped through the backdoor of our consulting rooms. Thus, discussion of method in the abstract is not only artificial, but also highly futile, and he commends to us the example of science where particular methods are worked out in relation to specific problems and subject matters. Defenders of analysis might well reply that philosophy unlike science has no specific subject-matter, and if it had, it would not be as Mr. Lee believes an examination of existence or process.

Mr. Lee does implicitly assume that it is the task of philosophy to clothe man with some positive doctrine, and his contention that the development of critical analysis leaves " man shivering so to speak in his intellectual nakedness " is surely an exaggeration. Outside the narrow circle of philosophical debate, critical analysis has a positive contribution to make to our way of life. By increasing our resistance to doctrinaire modes of thought it makes us less likely to behave in an irrational and prejudiced fashion, and if anything is necessary in the world to-day it is precisely this. Mr. Lee also fails to give sufficient weight to the critical element which runs throughout philosophy from Socrates onwards, and of which indeed, his own work is a good example.

Nevertheless his book shows a lively appreciation of many of the problems which still puzzle philosophers. Not only does he discuss from a fresh standpoint, the group of philosophical theories which academically come under the label ' Descartes to Kant ' but he also has an interesting section on the much neglected (as he thinks) Hegelian and Marxian varieties of the Dialectic, an understanding of which he takes to be essential for the study of social phenomena. And finally, written as it is to catch the eye of the American reader, the book contains a comprehensive account of pragmatism and its mode n offspring operationalism.

W. MAYS.

Beyond Realism and Idealism. By WILBUR MARSHALL URBAN. London: Allen and Unwin, 1949. Pp. 263 and index. 18s.

THIS book is not easily described. Professor Urban is clearly recommending a new philosophy which is a synthesis of idealism and realism. What is not so clear is whether he is actually *offering* such a synthesis. Several chapters prepare the way for it ; the remaining chapters comment on its consequences. One wonders : is there something missing ?

In a Preface, Mr. Urban says this book " may be viewed as a development of the epistemological presuppositions of my entire philosophy which can be understood only as occupying a position beyond realism and idealism " (p. 8).

Mr. Urban sets off in good, if crowded company when he declares that there is something wrong with the old dichotomy between idealism and realism. But he soon strikes out on his own. The debate of realism *v.* idealism is not for him, as it is for many of us, an artificial one : it is, on the contrary, a real and significant struggle—a struggle from which he would have us see emerge a new metaphysics at once embracing and transcending the two contending parties. This reconciliation is effected (or will be effected : Mr. Urban leaves me in doubt about the tense to use) by the process of dialectic. Considerable benefits will thereupon accrue. The first result will be to " free philosophy from many of the inhibitions from which it is now suffering " (p. 239). Philosophy will further profit from " the freeing of its energies for the larger problems that concern our peace " (p. 9) and " the genuine problems of speculative thought which it has so long suppressed " (p. 239).

The conflict Mr. Urban discusses is not simply between idealism and realism, but between " the driving force of idealism " and " the resistance of realism ". Sometimes he writes about the " true inwardness " of the one theory or the other, but rarely a page passes without at least one reference to the " driving force " and the " resistance ". Both the " driving force of idealism " and " the resistance of realism " have, we

are told, hidden sources—namely (p. 228) "extrinsic appeals to emotion and habit".

In pleading for his synthesis Mr. Urban nevertheless allows himself to appeal "beyond" logic. His argument that "idealism and realism mutually imply one another" (p. 22) is not, he explains, logical, because idealism and realism each has its own logic. His argument is dialectical, and understanding it requires "basal insight".

If Mr. Urban's book is hard to describe, it is even harder to judge. I suspect that I am without basal insight. Lacking it, I am left to assess what emerges from an ordinary exercise of reading. And that, to be frank, falls short of the author's promise.

Mr. Urban acknowledges a debt to Bosanquet in the formulation of his thought. He owes an obvious debt to Bosanquet in the formulation of his phrases.

"The driving force of idealism", "the resistance of realism", the "true inwardness" of this or that are expressions of which Bosanquet made economical but effective use. Bosanquet was something of a stylist, and such phrases as these enabled him to deal gracefully, rather than precisely, with his work of exposition. Mr. Urban writes less well, and though he calls for a language "understanded of the people", his style can hardly be said to d rive from the popular heritage of American speech.

Ordinary people do not speak of "true inwardness", and would not know what it meant. I believe, without being certain, that the expression is meant to be employed somewhat as the word "essence" is used in Thomist philosophy. But since neither Bosanquet nor Mr. Urban has defined "true inwardness", I have no authority for this suggestion. Again, it is hard to see exactly how an abstraction has a driving force. More puzzling still, how can an appeal (to habit, etc.) be the source of a driving force?

Perhaps in the realm of politics it is not so difficult to think of an "ism" having "driving force" or the power of "resistance". Somebody might, for example, say: "The driving force of socialism and the resistance of liberalism have combined to produce the British welfare state, which is neither socialism nor liberalism and yet is in some ways both." Not a very important observation, but the reader can see what is meant by it. That is because the business of politics is done by conflict and majority decision, by pressure and compromise. Of course there is no comparable *business* of philosophy. Philosophers dispute and their theories conflict. But there is no demand that philosophers should reach any agreement with each other; the call for settlement is never urged upon them. The suspicion grows that the struggle Mr. Urban discerns between "the driving force of idealism" and "the resistance of realism" is not so much of forces as of slogans.

Mr. Urban has a short way with dissenters. Positivism is mentioned. "The human mind", he says firmly, "knows this is not true" (p. 239). There is a reference, flattering at first, to Dr. Joad; then "the deeper source of his resistance to idealism" is located (p. 206). Alexander and Professor Kemp Smith are acknowledged as forerunners of the synthesis, and Mr. Urban is consciously indebted to Kemp Smith for one of his slogans: "an idealistic philosophy on realistic lines". (Mr. Urban claims that his synthesis is this.) But Mr. Urban does not like the German terms *Ideal-Realismus* or *Real-Idealismus*. They create, he fears, the suspicion of insincerity. Whether for this reason or another, Mr. Urban

gives no name to his own theory. He evidently thinks he has said enough in pointing in turn to realism and idealism, and continually reminding us that the solution lies *beyond*.

MAURICE CRANSTON.

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